The word "risk" comes from the Italian "risicare," meaning "to dare."¹ Developing or acquiring a mine anywhere takes plenty of daring. Undertaking a mining project overseas borders on the foolhardy - unless you understand the risks and take steps to manage those risks.

Every business endeavor carries some risk, and the astute businessman, over time, develops a sense of the kinds of risk presented by a business proposition, and a set of strategies designed to deal with those risks. Mining anywhere in the world has its own particular set of risks, in the form of commodity prices, engineering puzzles, and geologic uncertainty. When a company pursues mining on a global scale, additional risks arise, and things like political risk and currency risk come to the fore.

Risk can be approached systematically, indeed scientifically, with statistical modeling and sophisticated mathematics.² Few businesses make decisions based solely on the inevitability of mathematics, however. At the end of the day, a company must exercise its business judgment, based on its experience, and on what is most important to it, and make the hard decisions about how (or whether) to proceed.

In Against the Gods, Peter Bernstein reports that a designer of the Saturn rocket said that no matter how much effort you put in designing a valve that is, in theory, leak proof, in the real world, that valve will leak. The engineer then must determine how much leakage is acceptable.

Consider your mining project as that Saturn rocket. First, you will need to identify all the valves that might leak, the sprockets that might fail, the gears that might not mesh. You can then begin the design process, and strive to prevent leakage. You may come to understand that, at certain points, a leak is inevitable, and put measures in place to keep the leakage within acceptable limits. You might get surprised by a leak, and will therefore want some systems in place to address that contingency. If, when designing this rocket, you see too many inevitable leaks, you will "presumably" abandon that design and go back to the drawing board.

This paper provides an overview of some of the methods available to identify and assess risks for international mining projects, and then discusses some of the tools available for managing those risks.
I. Identifying Risks

1. Status Quo and the Risk Baseline. There is, of course, a risk associated with not pursuing an international mining project. A mining company should think about its "risk baseline" — the risks associated with maintaining the status quo.3 If, for example, a company has nearly exhausted its existing reserves under development, it may be required to undertake a new mining project (or acquire an operating mine) simply to remain in existence. Similarly, if the major share of a company's reserves are in a single country, the company may find it risky not to develop a mine elsewhere in the world, if only to diversify its portfolio of political risk.

2. Uncertainty. A company's ability to identify risk is limited by the certainty or uncertainty of risk. Risks can be loosely grouped into three types: known-knowns, known-unknowns, and unknown-unknowns.4 Indeed, our concept of risk is so closely tied to uncertainty that most of us would not consider known-knowns to be risks at all. If we know something is coming, we think of it simply as a circumstance to be addressed. In the United States, for example, we know our coal mines will need to be developed under the rules of the Surface Mining Control and Reclamation Act ("SMCRA"), and now, after twenty-three years, there is relatively little uncertainty about how the core requirements of SMCRA will affect the development of a mine. We can factor those costs and limitations into our development and operations plans, and determine whether a mining project is viable in light of those costs and limitations.

Known-unknowns are the risks to which we devote the most analysis. A known-unknown is a risk we know exists, but we do not know how it will affect us. We know, for example, that an international mining project will be regulated by the government. We may not know the nature and extent of that regulation, either because the mining laws of the host country are still being developed or because the host country might apply and interpret those laws in novel or random ways.

Unknown-unknowns are, by definition, difficult to identify, and hence difficult to manage. The 1973 Energy Crisis, the fall of the Shah of Iran, or the collapse of the Asian Tiger economy and the following Asian Flu are the sort of bolts-from-the-blue that can profoundly affect a business, but are unlikely to be addressed during project planning. Some particularly astute businessmen or experts might have predicted the event, but most of us don't plan for these remote events. It is the catastrophic nature of these events and their unpredictability that makes them hard to bring within the scope of our normal planning horizon.

3. Identifying Risks. The literature about risk divides risk into all sorts of categories, types, and groups. I have prepared a list of risks, grouped under several broad categories.5 This list can be useful in thinking through the types of risk that might arise in the course of a mining project or transaction. While I have tried to be as exhaustive as possible, there are no doubt risks that are not on the attached list, and there are certainly sub-categories of risks that fall under the broad headings that I haven't captured. Also, a project in a particular country might present a peculiar risk that, while highly individualized, is fundamental to the success or failure of that project.

A mining company can also identify risks common to its business by keeping track of the risks it encountered in previous projects. If it is true that those who do not study history are doomed to repeat it, then a formal method of capturing lessons learned from previous ventures should greatly benefit a mining company.

4. Assessing Risks. There are a lot of sophisticated methods for parsing risk, and the mathematics associated with risk assessment are (fortunately) beyond the scope of this paper. It is worthwhile, however, to consider how we think about risk when we make decisions about whether to proceed with a project and, if so, in what manner.

Working in the mining industry, you are well aware that many people overestimate or underestimate the risks associated with everyday activities. One's perception of risk is greatly influenced by psychological factors, such as one’s sense of control over the outcome, the ability to choose whether to take the risk, or the familiarity of the event.6 Thus, driving a car is not perceived as particularly risky, but skydiving is (at least among non-skydivers and insurance companies).

Even sophisticated business manager and engineers, striving to make rational decisions about business risks, can find their conclusions influenced by how risks are perceived. One commentator, for example, believes that political risk is routinely overestimated or underestimated, typically in somewhat reactionary cycles.7 Bernstein reports a study in which the subjects were asked about their preference between an 80 percent chance of winning $4,000 and a 100 percent chance of winning $3,000. Even though the outcomes were mathematically identical " and therefore presumably equally rational " most subjects chose the sure $3,000. However, if given an 80 percent chance of losing $4,000 versus a 100 percent chance of losing $3,000, nearly everyone chose the 80 percent chance.8 It is not so much that people are risk adverse, but rather they are loss adverse.9 Business managers are people, and will resort to their gut when trying to decide how best to proceed with a project or investment. In doing so, these softer influences on risk assessment will come into play. A mathematical analysis of risk can only take you so far, and may well get lost in psychological predispositions.

Similarly, a rough cut at the mathematics of risk can be misleading. Imagine, for example, that there are two absolute prerequisites for your mining project to proceed. If you are told that each has a 90 percent chance of occurring, you'd feel pretty confident about your chances. Since both must occur, however, that chance of your project going forward (assuming these are the only two risks) is just 81 percent.10 Add another prerequisite at a 90 percent probability, and suddenly the chances of going forward diminish to about 73 percent. It takes a pretty rigorous approach to risk assessment to properly calculate the ripple effects of the various risks affecting a project or transaction.
In addition to guarding against preconceptions about risks and their quantification, a mining company also needs to factor in the “risk event state,” which can be calculated as the probability of a risk multiplied by the amount at stake.\textsuperscript{11} Put more simply, it is important to keep in mind that a remote but huge risk can be every bit as significant as a small but more proximate risk. To put numbers to it, a one percent chance of a one hundred million dollar loss should be considered equivalent to the absolute certainty of losing a million dollars.

5. \textbf{Risk in International Mining Projects}. The list of risks attached to this paper sets out risks that might arise in any mining project. There are some risks that are common \textit{or} especially acute \textit{in} international mining transactions. After discussing some of these risks, I will turn to how these risks might be managed.

(a) \textbf{Political Risk}. Political risk is a broad term, covering a multitude of risks arising from the brute fact that when pursuing a mining project in the developing world, you’re not in Kansas anymore. Political risk gets a lot of attention because the expropriation of a hard earned project has a dramatically negative impact on a company. It is worthwhile, therefore, to set out the particular risks that fall under the broad heading of “political risk.”

(i) \textbf{Expropriation}. The most direct and most egregious form of political risk, expropriation occurs when a host country seizes your mine or its products for its own use, usually under the guise of the national interest. Nationalization is the evil twin of expropriation, and occurs when the host country makes an expropriation and hands the property over to a national company. There have been some famous expropriations in recent history. In the 1930s, Mexico nationalized its oil industries, and in 1969 Chile nationalized Anaconda Copper.\textsuperscript{12} More recently, McDonald lost its long-term lease on a lucrative restaurant in Beijing, although the Chinese did eventually yield to international pressure an compensate McDonalds for that loss.\textsuperscript{13} Host countries have become less likely to simply seize the assets of foreign companies, as doing so pills future investment in the country. Most host countries are keen to realize the capital that development of their natural resources can bring, and therefore are sensitive to the economic consequences of expropriation.\textsuperscript{14} Still, a mining company needs to consider whether the government of a host country is sufficiently stable to provide a consistent view of the benefits of mineral development. If the government that invited Western companies into the country to develop mines is toppled \textit{by whatever means} \textit{the new government may be more willing to seize key assets. This risk is especially acute when the new government has an anti-Western or anti-American bias.}

The United States has advocated the “Hull Doctrine” as the appropriate international law standard for expropriation. The Hull Doctrine would require “prompt, adequate, and effective” compensation by the expropriating host country.\textsuperscript{15} Most expropriating countries, however, argue that they have the sovereign right to determine whether expropriation is in the national interest and the appropriate compensation for that expropriation.\textsuperscript{16}

Coface publishes an annual country-by-country assessment of political risk.\textsuperscript{17} The editors of International Reports also publish The International Country Risk Guide, which provides a score for each country based on a variety of factors.\textsuperscript{18} These guides provide a useful primer on the political and financial risks associated with nearly every developing country in the world. A mining company will want to consider the potential stability of a host country carefully before committing itself to development in that country.

(ii) \textbf{Creeping Expropriation}. Because the international business community frowns on expropriation by host countries, some countries move toward their goal of expropriation in small steps. This creeping expropriation can come in the form of increased regulations, limits on the repatriation of currency, changes in exchange rates, and forced renegotiation.\textsuperscript{19}

(iii) \textbf{Violence and Terrorism}. In some developing countries, U.S. companies and their employees can be targets of violent acts by political groups or individuals. Mining operations might also be the target of sabotage or terrorist acts. A mining company will need to consider the direct losses from the disruption caused by violence and terrorism, as well as the indirect cost of increased security. It may also be difficult to recruit employees to work in these high risk areas of the world.

(iv) \textbf{Currency Risk}. A host country may, by rule or regulation, restrict the exchange of its currency for foreign currency. There is also a risk that revenue generated by a project cannot be converted to hard currency because the host country bank has inadequate access to foreign currency. Also, the bank may be able to convert the local currency to hard currency, but may not allow that currency to be transferred from the host country.\textsuperscript{20} Even where a host country’s currency is freely exchangeable, there is a market risk related to exchange rates between countries. Local regulation may limit a mining company’s ability to address these issues. The host country might, for example, require a company to establish local bank accounts in local currency, or be paid for products in local currency.

(b) \textbf{Market Risk}. The market for many hardrock minerals is global, and if a company can get its product on a boat, it should be able to realize a settled market value for that product. That global market presents plenty of risk in itself, and the mining company will need to consider how best to manage that market risk. The marketplace for coal \textit{especially steam coal} is more localized. Also, because coal is an energy source, the host country may require some or all of the coal to be sold in the local market. Where competition among power generators is less than robust, a coal company may find that the available marketplace does not offer sufficient value for its product.
(c) **Transportation Risk.** A mining company will need to move its product from the mine site to the marketplace. In many developing countries, adequate road or rail transportation can be hard to come by. The mining company may need to build roads or rail lines as part of the development of a mine. It may also find that it cannot contract for adequate rail capacity or hire enough trucks, even where roads or rails exist.

(d) **Legal Risks.** A mining company will need to consider whether the host country legal system is likely to enforce a contract if the company needs to seek redress for a breach. It will also need to consider the scope of its exposure to damages if it is sued in a host country. It is the ability to enforce contracts that is the critical legal risk when operating international. If a U.S. company is the defendant in a suit for damages, a plaintiff will often prefer to bring his or her cause of action in the U.S. courts. Contingency fees, class actions, the availability of punitive damages, and civil juries mean that the U.S. court system at least as likely to grant unconscionable levels of damages against corporate defendants than even the most biased forum in any other part of the world.

(e) **Operational Risk.** Every project has its own inherent operational risks. Things break. Projects get delayed. Materials and supplies fail to materialize. It may be more difficult to address these risks in a developing country because the marketplace does not offer good alternatives or options to address these concerns.

In many mining projects around the world, the mining company is required to take on as a partner a mining company affiliated with the host country government. A mining company might, for example, be required to contract with a local operating company. Alternatively, the mining company may be allowed to operate the mine, but subject to the supervision of a local company. These relationships may prevent a mining company from implementing its standard operating procedures, and may make an operation less efficient than it might otherwise be. It is unlikely, for example, that a U.S. company will be allowed to "right-size" the local operating company.

II. Managing Risk

1. the Company needs to decide what to do with those risks. For any given risk, a company can:

   - Accept it
   - Shift it
   - Share it
   - Spread it
   - Shrink it
   - Accept it
   - Avoid it.

   (a) **Accepting Risk.** A company may accept a risk because it has no choice. In those circumstances, the company will need to decide whether to go forward with its project, given that risk. A company may sometimes decide to accept certain risks as a matter of business policy. A company may believe it excels at mine development, and it therefore is happy to take on all kinds of project development risk. Another company may be comfortable in how its marketing group will perform, and so savors market risk. By willingly internalizing some risk, a company has a better chance of moving other risk away in the course of negotiations.

   (b) **Shifting Risk.** Given the choice, every mining company will shift a risk to another party. Methods of risk shifting are discussed below. One problem with shifting risk, of course, is that the mining company needs to find a party willing and able to take the risk from it. Another problem is that the party accepting the risk is likely to want the mining company to take some other risk on in return. A company may choose to accept risk where it has some control over the outcome, but shift risk where the causes of the possible outcomes is less certain.21 If there are, as discussed above, some risks that the company is willing to take on, then perhaps this quid pro quo isn’t such a terrible bargain.

   One commentator22 has proposed that a party should bear a risk where:

   - A party can control the risk, or, similarly, avoid it;
   - A party can insure for the risk;
   - A party gets the economic benefit of the risk;
   - It is efficient for the party to bear the risk; or
   - The party incurs the risk, and there is no reason to transfer it from that party.

   These rationales for risk shifting are inexact, and as a practical matter risk shifting is most often determined by the course of negotiations and the disposition of the parties toward those risks.

In international transactions, a mining company often has a company managed or controlled by the host country as a partner or contractor. Under the criteria set out above, many risks will be properly borne by the host country. It is, for example, the host country that can often control or avoid risks, or can handle them most efficiently. A mining company may find, however, that not every host country company will willingly accept these risks.
(c) **Sharing Risk.** A mining company may find that it is able to share some risks with other parties. A company might, for example, bring a partner into its mining project. The company and its partner will share the risks of its project or transaction perhaps equally, perhaps not, depending on the contract between them. A mining company may also share a risk with its construction contractor or with the transportation of its production. Also, by financing a project or transaction, a mining company share project risk with the financing institution at least to some degree.

(d) **Shrinking Risk.** A mining company can recognize that it is taking on a risk, but take measures to diminish the impact of that risk. Hedging, for example, can be used to minimize the downside risk of the market for products, and of the currency exchange rate. Hedging also takes away some upside benefit and, as will be discussed below, is not without risks of its own. Risks can also be diminished by reducing uncertainty through due diligence. Physical project risks, such as flooding or environmental risks, might be minimized though project design and other measures.

(e) **Avoiding Risk.** A mining company can always avoid a risk by not pursuing a transaction or developing a project. Whether that method of avoiding risk is acceptable will depend to a large degree on that company’s risk baseline. If a company needs or greatly desires a project or deal, then letting the opportunity pass may be an unacceptable risk management technique.

There are other less dramatic methods to avoid risk. If, for example, a company is especially concerned with market risk, it can sell all its product at a preset price, and avoid the market risk (granted, by shifting it to someone else). A mining company can avoid the risk that raw materials will be unavailable by buying them in advance and stockpiling them. A company can avoid the risk that that party will be unable (or unwilling) to perform. If the indemnifying party is the host country or a company effectively owned by the host country, you are taking on the political risk associated with the legal system and contract rights in that country.

1. **Common Risk Management Tools.** Having identified the risks associated with a mining project or transaction, a mining company must consider how best to manage that risk.

(a) **Contract Provisions.** Mining projects and transactions always begin with a contract, and one of the main purposes of a contract is to allocate risk among the parties.

   (i) **Indemnity Clauses.** Nearly every contract for the development of a mining project or the purchase and sale of a mining property includes an indemnity clause. These clauses are often lengthy and nearly unintelligible. The standards of drafting for indemnity provisions is a mystery, since legal systems typically require indemnification language to be clear to be enforced. These clauses are, however, the fundamental method for allocating risk between the parties to the contract. Some indemnity clauses are “knock-for-knock,” meaning that the parties will bear their own risk for certain kinds of events, such as injuries to their employees or loss of their property.

   Indemnity clauses can also shift risk away from one party and toward another. The owner of a property might, for example, agree to indemnify the purchaser for environmental defects that arose or accrued prior to some point in time. If the new owner discovers contaminated soil on his property, he can ask the prior owner to pay the cost of the clean up. The prior owner has a contractual obligation to do so under the indemnity provision. This example highlights one of the key issues in using indemnity provisions to allocate risk. If the prior owner doesn’t have any money, your valid and enforceable contract right does you no good at all. When you shift a risk to another party, you concurrently take on the risk that that party will be unable (or unwilling) to perform. If the indemnifying party is the host country or a company effectively owned by the host country, you are taking on the political risk associated with the legal system and contract rights in that country.

   There may be statutes that limit the scope of indemnity clauses. Some countries (and some states in the US) have passed “anti-indemnity acts,” which prohibit contracting parties from being indemnified from their own negligence. Some versions allow a party to be indemnified from its own negligence if the contract is clear about that indemnification and the parties have equal bargaining power.

   (ii) **Operators.** Many mining ventures involve multiple parties. It is common for the parties to enter into an operating agreement. The parties may include the host country or its mineral company. Operating agreements typically name one of the parties as the “Operator,” and this party manages the day-to-day operations of the mine.

   Operators like to be indemnified from the risks they take on as operators, and most parties are willing to accept that some risks should be borne by the group as a whole, rather than by the operator alone. Traditionally, operators have remained responsible for their “gross negligence,” “wilful misconduct,” “wilful default,” or similar concepts. There can, of course, be considerable debate about what acts fall within these categories.

   Operators have recently begun defining the level of action required to constitute the wilful acts of a company. Operators prefer a definition of willfulness that limits the actors to management or even senior management of the company. Thus, the act of a rogue employee of the company will be a risk shared by all the co-venturers, and not just the operator.

   (iii) **Guarantees.** Whenever you enter into a contract, you take on some risk about whether your partner will be able to
perform its bargain. This risk can be especially acute when working internationally, and the party to your contracts is an
uncapitalized operating subsidiary of a distant parent organization. This risk can be diminished if you can get a
guarantee from the parent, or at least from another subsidiary that actually holds some assets. A guarantee may only
guarantee payment under a contract, or it may guarantee performance. If the contract concerns a critical operational
element of your project, such as engineering design or the delivery of materials and supplies, a performance guarantee
is much more valuable.

(iv) **Consequential Loss.** The notion of collecting damages for consequential or economic loss is largely an American
notion, although it is making some incursion into other legal systems. It is common for contracts to state that each party
will bear its own consequential losses. That means, for example, that if you made a contractual commitment to supply
a minimum amount and cannot make that delivery (or perhaps a call based on a hedging contract), that loss may fall to
you, even if it is caused (albeit indirectly) by the other parties breach of another agreement.

The theory behind the mutual waiver of consequential losses is that the parties to operating agreement should not take
on risks associated with their co-venturers’ contracts with other parties. Imagine, for example, that you agreed to pay
significant liquidation damages under your sales agreement if you are unable to deliver the contracted quantities. Your
co-venturers want the risk associated with that bargain to stay with you, and not spill into the project.

(v) **Force Majeure.** A force majeure clause suspends a party’s obligation to perform its contract if an act of God. such
as a fire, flood, or war " prevents that party from performing. These clauses are standard, and become the subject of
negotiation only when a party tries to slip something into the definition of “force majeure” that is more an act of man
than an act of God " like market forces or failure to secure required equipment. The important thing to recognize about
force majeure clauses is that they require the parties to share the risk of events of force majeure. If you are counting on
a party to perform its agreement with you, and that performance is excused by a force majeure clause, then you will not
be able to collect damages for that party’s nonperformance, and so will not be made whole for your loss.

(vi) **Choice of Law.** In many international projects, a mining company will be required to enter into a contract governed
by the law of the host country. Operating agreements and other commercial contracts may well be governed by the law
of a U.S. state, or the law of some other country.

If your contract is to be construed under the law of a civil law country, it will be subject to rules of interpretation
unfamiliar to those of us who practice in the United States (and outside Louisiana). In civil law jurisdictions, the courts
apply broad principles of contract construction set out by legislation, while common law courts look to prior court
judgments for precedent. The principle of stare decisis has no application in civil law courts " these courts are guided by
"the authority of reason" and not "the reason of authority."25 Civil law jurisdictions, for example, are more open to
providing compensation for purely economic loss.26 Civil courts are generally more inclined to look to the commercial
intent of the parties to a contract, even where the words of a contract unambiguously allocate risk in a certain manner.
Those of us brought up on the common law tend to think that if a contract is clear on its face, that ends the analysis,
and what the parties meant the contract to say is irrelevant. It is important to be sensitive to these distinctions when
choosing the law to govern a contract, since they may well decide the outcome of a dispute over the terms of that
contract.

(vii) **Arbitration.** As discussed above, a company operating internationally takes on some risk that its contract will not
be properly enforced by the local court system, especially if the other party to the contract is the host country’s mining
company. One way to mitigate this risk is to require all disputes to be resolved under thorough international arbitration.
The American Arbitration Association, the International Chamber of Commerce, the London Court of International
Arbitration, and other arbitration organizations have rules designed to provide for the arbitration of disputes between
companies from different countries.

International arbitration can be especially helpful if you will need to return to the host country to enforce your
judgment " if, for example, that’s where the money is. About 110 countries are signatories to the 1958 New York
Convention on the Recognition of Foreign Arbitral Awards, administer by the United Nations Commission on
International Trade Law (UNICTRAL), in which host countries agree to enforce arbitration awards.27 Thus, a judgment
rendered through international arbitration may be more collectable than one awarded by a U.S. Court or any other court
outside the host country. A mining company may be inclined to negotiate a dispute resolution provision requiring that all
matters be heard by the Colorado courts. The host country may resist enforcing that judgment, and may indeed have
laws on its books allowing it to ignore that decision. If the host country has signed the New York Convention, however,
it is obligated to honor and enforce the outcome of an international arbitration. While the company may believe securing a
judgment will be easier in Colorado, enforcing that judgment could be much more difficult. An arbitration clause
provides much greater certainty.

Another useful approach to dispute resolution is to insist on resolution under the rules of the International Center of the
Settlement of Disputes (ICSID). About 130 countries have signed the ISCID Convention on the Settlement of
Investment Disputes between States and Nationals of Other States.28 Note, however, that a host country can require
the disputant to exhaust local remedies before moving to ISCID dispute resolution, which has the potential to prejudice
the outcome, and may well delay recovery of damages.29
Insurance. Insurance is a great way to manage certain types of risks. Natural disasters, injuries to third parties, even business risk can be managed through insurance. Many large companies have determined that they would rather bear the risk of property loss, for example, rather than try to insure for it. Because insurance is market driven, companies can make informed and quantifiable decisions, about what risks they wish to shift to insurance companies, and subject to what conditions.

A mining company can also insure against political risks. One of the earliest programs to offer political risk insurance was the Overseas Private Investment Corporation (OPIC). OPIC is a United States agency established in 1971 to foster foreign investment in foreign countries. OPIC coverage can be used to insure against expropriation, political violence, and the inconvertibility of foreign currency.

Because OPIC is a government agency, its coverage is limited by some policy considerations. The project must, for example, be largely U.S. owned. If the project includes foreign partners, only the U.S.-owned portion will be insurable. Coverage is limited to 90 percent of the project, up to $200 million. OPIC is also limited to new projects or major revisions to existing projects. OPIC insurance must be approved by the host country.

Political risk insurance is also offered by the World Bank through the Multilateral Investment Guarantee Agency (MIGA). Eligibility for MIGA insurance is very similar to that for OPIC, although MIGA also requires a showing that the project will be commercially sound.

Private insurance companies also offer political risk insurance. The private market has some advantages over OPIC, as coverage terms are not governed by foreign policy considerations. Coverage can be more flexible, and some companies offer packages combining political and commercial risk coverage.

Hedging. Hedging has been much in the news in the mining industry, and perhaps will be seen as a way of creating risk rather than mitigating risk. Still, a hedging program is a rational method for managing foreign exchange risk and commodity price risk.

A mining company might, for example, lock in the exchange rate for its foreign currency over the next few months. Doing so takes away the risk of an unfavorable exchange rate, but does so at the cost of trading away the upside from a favorable movement in the exchange rate. Also, hedging foreign exchange risk only works where the currency in which a mining company is paid is freely exchangeable. If there is no market for the currency, then hedging is not available as a risk management tool.

Partnership and Joint Ventures. A mining company can spread the risk of its mining venture by bringing in a partner or joint venture. While doing so requires a company to share the benefits of the project, it also has the opportunity to share costs and the associated risks. Careful partnering can also help minimize other non-operational risks. Bringing in a local company familiar with the culture and practices of the host country can help minimize some of the political risks associated with working internationally.

Due Diligence. As discussed above, risk arises in part from uncertainty. Thus, a thorough due diligence effort prior to or part of a transaction or project diminishes risk by diminishing uncertainty. Once a risk is revealed during due diligence, a mining company can adopt a strategy to manage the risk, or try to shift it elsewhere.

Contingency Allowances and Escrows. Because mining companies "like the rest of us" are not omniscient, they are occasionally surprised by a risk. Including a contingency allowance in the budget for a project is a risk management technique. When the surprise arrives, there will be some money available to address it. Similarly, some portion of the money from a transaction can be placed in an escrow account, to be drawn upon subject to the terms agreed between the parties.

Non-Recourse Financing. The use of project financing or other non-recourse debt is a way to isolate risk within a particular project, so that it does not affect the parent company. The premise of project financing is that the cash flow from the project will be sufficient to service the debt. Thus, the debt will be secured by the assets of the project, and not by any other assets of the participating companies. Many projects can be financed at a very high level " perhaps 80 or 90 percent of the money needed for the project can come from debt. If the project fails, the loss will accrue to the financing institutions, and the equity of the project participants remains safe (except, of course, for their equity investment in the project).

Using project financing and the associated leverage it provides is a useful way to spread risk. It also has other economic benefits, such as keeping the debt off the balance sheet of the participating companies. The project developers do lose some control over their project, as the financing institutions will require numerous controls and safeguards in the debt documents. Most financing institutions retain a right to step in and manage a project if things start to go wrong. They also make sure that debt repayment comes early in the allocation of revenue from the project.

Business Structures. The corporate form is a wonderful thing. It allows a mining company to compartmentalize risk in operating subsidiaries, and prevent risks from flowing from one area of business to another. Nearly every countries' law recognizes the notion of a corporate veil, and most countries seeking mineral development have passed laws creating additional business forms, such as limited partnerships and limited liability companies.

The business structures can also be used to manage tax liabilities, either by moving income to a tax haven like the Caymans or...
Bermuda, or by keeping a holding company in a country with a broad network of tax treaties, such as Spain or the Netherlands. Many host countries have adopted tax policies that disfavor dividends to tax havens, so proceed with caution. Simply incorporating a Caymans company may not be the most certain way to manage tax risks.

III. Conclusion

Mining companies are sophisticated business enterprises, operating throughout the world. They routinely deploy the methods of risk management discussed above. As with any undertaking, the careful and rational consideration of the risk associated with that enterprise can help a company compete and succeed. No matter how much analytic force a company bring to bear on its risk assessment, the future will remain opaque until it become the present. Mining enterprises will therefore always require a certain amount of daring. You must be like Tennyson’s Ulysses: “strong in will/To strive, to seek, to find, and not to yield.”

THE LIST OF RISKS

Political Risk.
- How likely is it that the government granting your license or permit will stay in power?
- Is there a risk of expropriation, nationalization, or confiscation?
- Might your business be regulated out of existence?
- Is the country politically stable?
- Is there a risk of sabotage or vandalism?
- Will a Western company be a target for sabotage or kidnapping?
- Will the host country be privatizing the mining industry or other industries associated with the mining industry? If so, will privatization cause instability or unrest?
- Is political risk insurance available for your project? At what cost?

Market Risk.
- Is there a market for your product?
- How volatile is that market? Are mechanisms available to hedge that risk?
- What is the rate of inflation in the host country? Is inflation likely to increase?

Transportation Risk.
- Will you be able to get your product from the mine site to the marketplace?
- If so, is the cost reasonable, certain and stable?
- Will you be required to construct infrastructure, or contribute to its development?
- Will infrastructure be developed in a timely manner? Is there a risk of delay in the development of transportation infrastructure?

Currency Risk.
- Will you be paid in hard currency?
- Is the local currency convertible?
- Can cash be taken from the country? At what level or in what amounts?
- Will you be allowed to transfer money out of the country? Can this be done while the project us operating and upon a sale of the project?
- Is the exchange rate favorable or unfavorable?
- Can you hedge the currency?

Legal Risk.
- Will your contracts be enforceable?
- Does the legal system of the host country offer meaningful legal remedies?
- Will you be able to secure and maintain patents and intellectual property rights?
- Might you be the subject of a lawsuit brought by citizen or local employee? If so, are you likely to be able to mount a legal defense?

Labor Risk.
- Is the work force likely to accept a change of control without incident?
- Will a new owner be able to streamline the workplace or seek efficiencies without causing labor unrest?
- What is the history of strikes and labor unrest among the workforce?
- Is the workforce adequately trained? Are employees available for jobs at the mine?

**Business Risk**

- Will the project be profitable? How likely is it that the project will make a loss? For how long?
- Will the project make hurdle rates for investment required by your company?
- Does the return from the project hinge on certain characteristics of the marketplace or on a sales agreement or supply agreement? If so, are those contracts at risk, or might the market change?
- Can the project afford to bear its own risk of lost profit, consequential losses, or lost opportunities?
- Will the project compete with other similar projects? What is the new entry price for competition?
- Will the sale or transfer of the project be subject to preemptive rights or other restrictions?
- Is insurance available for business risks? At what cost?

**Geologic Risk**

- Has the geology in the area been adequately explored and analyzed?
- Are reserves as calculated and projected?

**Force Majeure**

- What are the risks of fire, flood, earthquakes, and other natural disasters?
- Is insurance available for business risks? At what cost?

**Project Risk**

- How likely is it that a project will be completed on schedule and within budget?
- Is the project properly designed?
- Will the project be delayed? At what cost?
- Can the project be financed?
- What are the chances of cost overruns?
- What are the chances of schedule breaches and delays?
- Will contractors perform their contracts properly?
- Are your partners financially solvent?
- Do you partners share your goals and motivations?
- Are you able to coordinate your activities with your partners?

**Environmental Risk.**

- Does the acquisition or project pose environmental problems?
- How is the local regulatory authority likely to treat environmental incidents?
- Is your project consistent with local land use, planning, and zoning?

**Health and Safety Risk.**

- Can a mine operate safely in the host country?
- Can the work force be trained to make safety a priority?

**Tax Risk.**

- Does the host country government impose any transaction taxes, such as stamp duty?
- Will revenues or losses from the project receive the most-beneficial tax treatment available to the company?

**Infrastructure Risk.**

- Will essential infrastructure such as power and water, be available to the mine?
Does the host country expect a mine developer to build or contribute toward infrastructure?
Are materials and supplied readily available at an acceptable price? Are the quality of materials and supplies sufficient for the needs of the project?
Will spare parts be available?

Operational Risk.

Will you be allowed to operate your mine as you wish?
Will you have a governmental partner who expects to operate or oversee operations?
Will you be allowed to import and deploy your preferred mining technologies?
Will technologies used at your project become obsolete?
Will prefer technologies add inappropriate complexity to your project?

Cultural Risk

Will the company provide adequate training to avoid possible incidents arising from cultural differences?
Will cultural differences prevent the company from conducting business in its usual manner? In an acceptable manner?
Will governmental agents expect bribes or other illegal payments?
Are there indigenous people in the vicinity of the mine? What are the nature of their current rights? How might those rights change and increase in the future?

4 PMI at III.2, III.3.
5 See Attachment A.
6 PMI at VIII-4, VIII-5.c.
8 Bernstein at 272-74.
9 Id.
10 PMI at IV-7.
11 PMI at IV-7.
13 Hill at 295 n. 56.
14 See, e.g., Hill at 288.
15 Chew at 641.
16 Chew at 641.
18 See Hill at 293 n.45.
20 J. Mauel Common Risk Allocations in International Mining Projects, 1996 Colum. L. Rev. 37, 57 (1996).
21 Bernstein at 197.
26 Id. (part II 1999).
27 My thanks to Robert F. Pietrowski of Coudert Brothers in Washington DC, who first tutored me on the New York Convention back in 1996.
29 Id.
31 See Jenney.
33 Williams at 75.
34 Williams at 84.
35 Williams at 85.
36 See Jenney.
37 See Jenney. For an example of a private insurance company political risk policy, see Fitzgerald, Private Sector Political Risk Insurance Coverages, 803 PLI/Comm 427 (2000).
39 Peru, for example, recently expanded the types of business forms available in the country, and promotes their flexibility as part of its efforts to attract mineral investment. See e.g., www.perupetro.com.pe.