

# Working Paper

## Gaining the Rewards From Privatization Risks in Central and Eastern Europe

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WP-93-042  
August 1993



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## **Abstract**

Enterprises in transition from state to private ownership in the emerging market economies of Central and Eastern Europe face massive risks. Here we analyze how they might have also the rewards that may, only with the proper management, accompany acceptance of risks. In this paper, risks are itemized and quantified for a typical situation from their many potential sources: BUSINESS (including accounting and control system, financial, operations, marketing, strategic, and management risks), LEGAL, ECONOMIC, ENVIRONMENTAL, GOVERNMENTAL SUPPORT, and POLITICAL. Because these risks are felt differently by the seller, namely the state, and the buyer, the comparative objectives of buyer and seller and associated measures of performance are identified. Potential sources of joint gains for both buyer and seller are evaluated, which reduces both the risk that the enterprise is not sold, and the chance of subsequent failure of the new firm. The effectiveness and practicality of a variety of techniques for risk reduction are analyzed, including some innovations in the privatization arrangement. The potential for reducing risk will be seen to be far beyond what typically is now in place. The analysis relies on an example model that represents a typical privatization situation in a Central or Eastern European country.

# Gaining the Rewards From Privatization Risks in Central and Eastern Europe

*Samuel E. Bodily*<sup>1</sup>

## 1. INTRODUCTION

In the command economies, people gave up their freedom of choice in exchange for security. Now almost all centrally planned economies have moved to freedom of choice, and the people have given up the certainties in their lives. Why have they done this? Because of the promised rewards of taking risk. And now there is grave danger that somewhere down the road the rewards will not have materialized for many people and they will ask "We took the risks, now where are the rewards?"

This grand disillusionment may come as people realize that rewards are not **guaranteed** by risk taking, they are only **associated** with risk taking. The connection between risk and reward in market economies is there due to constant vigilant effort towards identifying, valuing, reducing, and controlling risk. The hand described by Adam Smith may be invisible, but it is based on considered, assertive, action and is not at all the same hand on the controls of the command economy. This paper is intended to help those who are transferring enterprises to private hands and those receiving these newly privatized firms to manage the risks and enjoy the rewards of their endeavors.

We focus here on risks to an enterprise at the time of transition from state-control to private control, primarily in the context of Central and Eastern Europe. Nonetheless the ideas here will be of interest in the privatization that is taking place elsewhere around the world.

There are two significant players in the transition of a state-owned enterprise into private hands: the seller, namely the state; and the buyer, which is another firm, an individual, or a group of individuals. The interests of buyer and seller diverge in any situation, yet there must be some zone of convergence if a privatization transaction is to take place. First, we enumerate the potential sources of risk. Since the perspectives of buyer and seller differ, we identify the objectives and measures of performance of each.

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Then we develop a consistent decision model that will project attribute values for buyer and seller in a potential privatization transaction given choices that can be made in the privatization negotiation. Areas are identified where joint gains can be obtained for buyer and seller.

Risks are then quantified in the model. The analysis of the magnitude of the total risk explains why there is often no buyer for a firm, particular when the assessments of risk are different for buyer and seller. Ways of reducing risk are then described and some methods are applied to the example. Not only does this enhance the possibility of the privatization deal being struck; it greatly improves the chances for success of the fledgling firm in uncertain world of the market economy.

Our analysis relies on a case example that represents a typical privatization situation in a Central or Eastern European country. The example is the composite of many different real situations. The focus is on the privatization process for a multinational company acquiring a major firm by direct sale, however the ideas here are relevant to many types of buyers, including individuals or investment funds holding vouchers and privatization ministries. It may also be useful to companies that are already privatized as stock companies that now are involved in negotiations to recapitalize or restructure. The example contains more issues than any single situation and so the underlying model is distilled to the essential relationships in order to streamline this discussion.

## 2. SOURCES OF RISK

It would seem that an enterprise becoming private in a newly-made market economy faces every conceivable uncertainty. Of course, any firm faces business risks, but the transition from a command economy magnifies even the common risks, and adds many others. Management behavior that led to success in the command economy creates additional risks in the market economy.

Exhibit 1 displays the potential uncertainties, with the usual business risks in the left column and other risks in the right column. Under the business heading are the usual risks along with some that have special meaning in the privatization context.

There is the potential for **accounting** error and misunderstanding in many business situations. In the transition from command economies this can be particularly serious. Basic terms, such as profit and cash flow have been undefined or misunderstood; in many cases the measure of performance has been tons of product or size of plant. True fixed and variable costs are rarely tracked accurately. This makes income data suspect. And there is little to go on for valuing a firm, except book value, which has little meaning, especially in a highly inflationary economy.

**Financing** a firm is much more difficult in the economies in transition. Personal savings have been spent on the inflation that followed the freeing of prices, leaving meager internal sources of capital. Even healthy firms may have difficulty obtaining capital for short-term projects and for working capital. A four year loan is long-term. Real rates of interest are high, above 5% and often above 10% when money is offered.

This means that many firms can expect to meet their capital needs only through retained earnings.

Unfortunately, a good enterprise's earnings may be retained by others. In the command economy it was good business practice to extend credit to suppliers and customers. It gave a competitive edge in obtaining raw materials and selling products. This means, however, that the enterprise is owed a lot of money. The enterprise may have a substantial net worth if these arrears are paid and otherwise be insolvent if they are not.

Successful **operating** of the new company will depend on how productivity and quality improves in the newly privatized firm relative to the rise in wages. It is not unusual to find as many as three times more employees than are needed to do the work. Wages are correspondingly low, but there is a great appetite to bring them up to Western standards. The risk is that productivity increases may not keep pace with wage increases. This may have much to do with government and union flexibility on reducing the number of workers and making wage concessions.

To many enterprises, the most significant risk would be in **marketing**. Many products in the command economies were sold only because the customer had no choice of product. Most of these products will not sell on the global market at any profitable price. In the short-term, the product may sell domestically if only because it enjoyed a monopoly in the command economy, but without product improvement, this market will not last. The marketing task is to upgrade products to global standards quickly using available technology, before the local market evaporates. It is by no means certain that this can be done, nor that the global market penetration will be sufficient.

The **strategic** risk comes from two sources. One is the relationship of the new firm to its industry. Both the industry and the new firm will likely undergo restructuring. Typically both suffer from too much vertical integration, for example. The successful privatized firm will generally sell off some businesses and perhaps take on some others. In the meantime the industry will have changed also, maybe at a faster pace. It is unclear whether a particular firm will emerge a winner when the dust settles.

**Management** behavior is another chancy aspect, whether or not experienced top management is brought into the new firm. Some of the management from the command economy will by necessity remain. Resources will have been inefficiently deployed under these managers in the past; can those resources be effectively redeployed. Will they make effective use of scarce capital and grow the firm? Or will they remain in the old mindset?

Activities that led to risk reduction in the command economy may magnify the risk in the market economy. There are several aspect to the change from command to market that relate to this:

**Supply scarcity becomes money (capital) scarcity.** In the command economy it was good management to maintain high raw material inventories to assure the ability to produce goods. This results in high carrying costs. Also to reduce risk,

there was a high degree of vertical integration, which is now largely unwarranted, and results in inefficient use of management (due to low specialization) and of capital (due to the duplication of activities and low scale economies). It was wise to extend credit to partners and customers in order to assure continuing production and sales of product. Of course it also leads to a circle of debt among businesses which makes the survivability of all uncertain.

**Collective responsibility becomes individual responsibility.** To some extent in the command economy risk could be minimized by avoiding individual responsibility, and taking moves collectively. In the market economy, success is related to moving quickly and each individual manager must take action. If they wait for someone else to initiate improvements or for the group to resolve an issue it can be too late.

**Aim to grow size of operation, not its value.** In the command economy it would seem that success was related to the size of an operation and that a manager could reduce risk to his enterprise by making it bigger. This suggests 1) having many workers 2) having a large plant and 3) increasing production. Of course, in a market economy moving in this direction can increase risk of survival to the firm by having 1) low productivity 2) low capacity utilization and 3) unsold product. There are even cases in the command economy of exporting product at a price below variable cost in order to increase volume of production. The old quip "If you produce it at a cost of three, and sell it for two, then you must make it up in volume," may fit some situations.

The non-business risks are particularly pronounced in the new market-economies. The legal framework is ill-defined (sometimes almost non-existent). The ability to make enforceable contracts, collect debts is uncertain, even what organization (federal, provincial, regional, city, district of city) has jurisdictional responsibility.

**Economic risks** are significant enough when a company is privatized in a pre-existing market economy, for example Great Britain or France. Uncertainty in the macro-economy is even more pronounced in an economy that is rising like a Phoenix from the ashes of the command economy. The level of inflation will show great variability and is often mercurial (e.g. inflation in the Russian Federation in 1992 was 2000%, mid-year figures). In the usual cases, the rate of currency exchange is important to the buyer, and very difficult to predict. The growth of the domestic market, which is the prime market for the firm's goods and services, is capricious. The infrastructure to be used by the firm, roads, communications, and price and availability of energy, are all unsure.

The command economies left a legacy of **environmental damage**. The extent of ground and groundwater pollution on property will usually be fully realized only after ownership of the property and a full assessment is made. Even then the costs will be uncertain until the cleanup is completed. Uncertainty about the liability of the owners will continue sometime after that.

Many state-owned enterprises will not be privatized, as one might imagine from

this catalogue of risks, unless the **government** offers some guarantees or other incentives. This may take the form of tax relief from federal or local governments through a tax holiday or reduced tax rate, even investment grants for certain technology or, for example, pollution control technology. It might also take the form of short-term protection from foreign competitive products through a tariff duty on imports. Of course many of these arrangements are settled in advance of a privatization and not totally uncertain once an agreement is in place. Ahead of time, however, they may be uncertain as to their magnitude and duration, and even when put in place, the ability to maintain the agreements with subsequent governments may be in question.

The final category on our list of risks is **political**, last but not least. There is some concern that a firm might be renationalized with only partial compensation. Or that the change of regime will limit the prospects for a company. This latter may seem unlikely to happen. Consider, however, the example of a Slovakian company with more than half of its business in Prague that was newly privatized in 1992. In the next year it is no longer operating under Czechoslovakian laws, and in fact is a foreign company in the Czech Republic, and therefore subject to different rules.

Even with such a long list, there must be items of risk that are missing. Of course, it will be difficult to consider even a portion of this list explicitly in our case example. The list does, however, indicate the kinds of risks and the large number of risks in privatization.

### **3. DIFFERING OBJECTIVES: COALESCENCE OR CONFLICT**

Adding to the problem of risk and differences in the way that risk impacts buyer and seller in a privatization is the fact that buyers and sellers have different objectives for a privatization. Exhibit 2 shows some of the objectives of the two sides to the transaction, along with some possible associated measures of performance for the new firm.

The buyer has a strong interest in potential cash flow from the firm to be acquired and also in its strategic importance to other businesses operated by the buyer. The buyer may, for example, wish to limit the erosion of sales of existing products and avoid the movement of manufacturing away from existing facilities, which would reduce capacity utilization.

In addition to revenue to be raised by the sale, the seller may be interested in high future employment levels, imports, local content of goods, new investment in the domestic economy, tax revenue, and protection of the environment. They may also be interested in the domestic availability of high-quality products or how well the new firm carries out the country's industrial policy.

The privatization process is different from other merger and acquisition activity.



In privatization the seller, a government, cares greatly about what happens to the properties after they are sold, not simply how much value they may get from it. This is even more true in economies that are in transition to the market. Not only will the new economy rise or fall with the performance of the newly privatized firms, but political goals important to the survival of the government depend on achieving the objectives including those in Exhibit 2.

At first glance, it would seem that the differing objectives of buyer and seller will lead to conflict, making it harder to carry out a privatization transaction and then to have the subsequent support of the government. However, by structuring the deal appropriately, it may in fact provide opportunities to get away from zero-sum competitive situations and to find joint gains. Without finding ways to reduce these risks, however, the seller may face what may even be a larger risk--to propose privatization for an entity and then fail to go through with it.

#### 4. THE CASE EXAMPLE AND MODEL

An illustrative example would be very helpful to the study of how buyer and seller can improve the rewards of privatization. And to accompany the example, a decision model would provide the necessary linkage between decisions taken by each party and the benefits they derive. Such a model would be imperative for placing an ownership value on the enterprise, particularly since there was no such number before. The model is essential also to estimating the benefits to the government and consequently to measure the success of the privatization process itself.

The model should be consistent with discounted cash flow (DCF) concepts of modern financial theory. Yet it cannot rely on valuation models which draw heavily on the evaluation of active stock and bond markets, since these markets are fledgling or non-existent. The model must capture the idiosyncratic characteristics of an enterprise, the country in which it exists, and the macroeconomy. Thus a model would be needed for each separate instance. Yet many of the characteristics will be similar across many cases. Of course, we wish to go beyond specific recommendations for a unique case, here, to abstract some techniques and principles that will be helpful in many settings. A composite case situation, bringing together aspects of many real situations, seems to be the most appropriate abstraction. In order to avoid falling on political landmines, it is best to make the country a composite also.

Consider the country of Ceerovia (CEErovia), so named because it reflects many of the common characteristics of economic history of Central or Eastern Europe (CEE). It's concern for privatization is real even though Ceerovia isn't on your map. Negotiations are underway between the privatization ministry of Ceerovia and a multinational company that is interested in purchasing some or all of a manufacturing enterprise which has a range of products now sold exclusively in Ceerovia. A multinational buyer is merely illustrative of many possible potential buyers and is not

necessarily the norm in CEE privatization. Of course multinationals are important sources of experienced management and capital and make up a significant percentage of successful privatizations, at least when weighted by size.

The government of Ceerovia has a number of decision variables available to it relating to this privatization. It can provide a protective tariff on products entering Ceerovia that compete against those of the enterprise. It can guarantee to indemnify the company for a particular percentage of environmental damage due to past activities. It can determine the length of any tax relief or tax holiday, and set the depreciation period for computing the tax deduction from capital investments. It can choose to retain a certain ownership in the enterprise, and it could choose to provide a loan for a chosen percentage of the capital investment in the new company.

The buyer, on the other hand has some flexibility about how the new company will be run. They can choose the what percentage of the products in Ceerovia are produced locally rather than imported as components. They can determine the amount of investment in a greenfield plant in Ceerovia. And of course, buyer and seller, together negotiate the price for the enterprise. All of these decisions will have an effect on the Net Present Value (NPV) of the cash flows for the firm and other measures of performance. Other business and macroeconomic variables will also affect these performance measures.

Business variables include such things as the size of the domestic (inside Ceerovia) and global markets (outside Ceerovia) for the manufactured goods of the new company and their rates of growth; variable and fixed costs; and the rate of wage increases less productivity increases. Macroeconomic variables include interest rates and currency exchange rates, among others. The currency used in Ceerovia is the CEE, abbreviated C, which at the moment trades at a 1 to 1 rate with that of the currency used by the buying firm.

The basic relationships among the variables in our illustrative model for Ceerovia are described by the influence diagram of Exhibit 3. In the diagram, rectangles indicate choices taken either by the government (seller) or the buyer. The nodes with the rounded corners are measures of performance that influence the value to buyer or seller or both. The other nodes (ovals) are intermediate variables representing various cost or financial numbers that link decision variables to measures of performance. An arrow running from one variable to another suggests the direction of influence. For example, the Tax Relief decision variable affects the Taxes that are collected. Some of these ovals have no arrows coming into them, and thus are unaffected by decisions; they represent exogenous influences such as those from the macroeconomy or the industrial environment.

The specific influences of one variable on another can be written in a spreadsheet model. Exhibit 4 shows the solution to such a spreadsheet model, using the buyer's base (first-cut) assumptions. We assume that the seller's analysis would use the same model

with a different assumption set, that is, different values for the variables in the upper portion of the spreadsheet.

The calculation of the government value in the model is given by

$$\text{Govt Value} = \text{NPV} * \text{Govt Ownership Share} + \text{Price} + \text{Taxes NPV} \\ + .3 * (\text{Export} - \text{Import}) + 1.1 * \text{Taxes on Local Wages} + .1 * \text{Greenfield Investment}.$$

This reflects the value from any government ownership retained, the income from the sale, and the discounted present value of the taxes collected. It also accounts for the degree to which exports exceed imports, the amount of local wages the new firm produces, and the amount of greenfield investment, although an econometric analysis might be necessary to scientifically estimate the correct multipliers to use for these items. This approach is again illustrative; there are many other ways to measure government value besides the one described here for Ceerovia.

## **5. JOINT GAINS IN CONDITIONS OF CERTAINTY: REDUCING THE RISK OF NO TRANSACTION**

One of the fundamental risks, and a particularly large one in many CEE countries is that no privatization deal can be struck. Consequently the enterprises will rapidly die or slowly shrivel under state control. This outcome would have the value (0,0) to buyer and seller. So we focus first on improving the chances of consummating a privatization arrangement and finding values above zero for both parties.

The government's (seller's) base assumptions and results are shown in Exhibit 5. Note the difference from the buyer's base assumptions in the initial Domestic Market (200 Million Cs rather than 50), the Global Market (10 Million Cs rather than 120) and the local content (0% rather than 60%). Comparison of the two base cases indicates what may often happen in first-cut analyses by two sides of a bargaining situation: each party views the transaction as rosy for the other party, but not for themselves--notice the highly negative value for themselves. This occurs even though both sides are using the same model, just differing assumptions--the effect may be even more pronounced in reality where the two sides have differing views of how the variables relate to one another.

### **5.1 Information Sharing**

If we stop at these first-cut evaluations, no deal will be struck, since each party sees a negative value from the opportunity. There may not even be any further discussion. Consider, however, what further discussion, even information sharing may do to the transaction.

The buyer, which is a company that operates globally in the product markets of

the enterprise being sold, would be in a better position than the government to know about the market prospects worldwide. On the other hand, the government, having access to inside information from the enterprise as well as information sources within various ministries, may be in a better position than the buyer to know the size of the domestic market. Thus, if they were to share information, they might convince the other party of their assessments of the markets they each know best. For example, consider the results if we use the buyer's estimate of the global market and the government's assessment of the domestic market. In evaluating it, we would need to set the other input variable about which they differ--the local content. Recall the seller had the local content at 0%, reflecting their expectation that the buyer will wish to sell the goods in Ceerovia but manufacture them elsewhere. The buyer had assumed for political and strategic reasons that they would use a high local content, even though it would be more costly. Suppose they discuss the local content issue and agree that it would be 60% over the first five years of operation.

Combining these variables we have a result that is much better for each party (and now positive for both), as shown in the diagram of Exhibit 6. While the information sharing assumptions may be extreme (the parties may not be totally convinced by the other party's market assessments), many other compromise assumptions would also give better, positive, outcomes to each party than their respective base case assumptions, although the improvement would be less dramatic.

## 5.2 Negotiating Joint Gains

Various agreements between buyer and seller can be struck that can potentially improve the privatization for both parties. This would not only reduce the risk of no privatization, it will reduce the risk of financial failure after the privatization. Some of the decision variables available (see the influence diagram) are

- tariff protection- that is a tax on those foreign products that enter the country which compete against products made by the new firm
- environmental indemnity- the percentage payment by the government of any claims against the new firm due to prior activities of the enterprise
- tax relief- a holiday from taxes for a specified number of years after privatization
- government ownership- the government may retain some ownership of the firm, under 50% if the buyer is to be a strategic investor.

The effects of changing each of these controls one-at-a-time to given levels are shown in Exhibit 7. In general, altering these variables affords opportunities to move to the right and up in the space of value for the two parties, and are thus inviting. Unless the privatization process includes consideration of some of these opportunities in the context of the firm, more risk than is necessary will fall to the firm.

It is not necessarily the case that all of these controls will be used, however, for

political, or strategic reasons. For example, the tariff protection is attractive to the firm, since it means less competition, which translates either to a higher sales price for a given volume of sales or a higher volume of sales. It also provides income to the government and gives a higher level of government value. However, the model is not designed to consider the effects on a silent party to the transaction, the consumer (and hence the economy). These and other political considerations may lead the government to decline the tariffs. Yet opportunities to reduce risk and raise value will be lost if those variables in the negotiation that are feasible are not explored.

So far all that has been presented here has assumed that there would be no greenfield investment by the new firm (and its new owner), although the model will accommodate investment in a greenfield manufacturing site within the range of 0 to 1000 million Cs. Typically, when multinationals have considered purchasing a CEE enterprise, the investment in a greenfield operation, while very desirable for the government, is not particularly attractive; gaining access to new markets or acquiring assets is more attractive. And without a greenfield investment, the variable cost and quality of manufacture within the country may not be attractive, leading the buyer to keep the local content low. The government may not wish to privatize the enterprise unless there is new investment in manufacturing promised. Thus there is a stalemate, and the deal may not take place.

It is possible, however, through the use of various incentives, for the government to entice the buyer to make their desired investment, thereby achieving some other desired objectives as well. For example, if the buyer makes the investment, it then becomes attractive to the buyer to use much more local content in the goods that they sell in the country, which is another objective of the government. Generally several incentives must be combined to bring about such an outcome.

The model was used to evaluate the following package of investment incentives and activities: tax relief for the first five years of operation, tariff protection with a 25% duty on foreign goods, a government loan of 95% of the greenfield investment, and in exchange an agreement by the firm to invest 1000 million Cs in a greenfield plant, and to use local content of 98% of the products sold in Ceerovia or exported by the firm to other countries. The resultant value to both buyer and seller is very high, as indicated by the buyer and seller values for this alternative shown in Exhibit 7, even though doing just one item in the package of incentives and promises would not have been attractive to both buyer and seller.

Pushing the idea of joint gains to its extreme, we identified a combination of activities that would give the Nash bargaining solution for the Ceerovia model, which is also included in Exhibit 7. The items from the model that were allowed to vary were Price (of the enterprise to the buyer), amount of Greenfield Investment, Environmental Indemnity Percentage, Tax Relief Years, Depreciation Years (period for straight-line depreciation), Tariff Percentage, Government ownership, Local Content%, Government

Loan%, and Tax Rate. In the Nash solution, the product of the buyer and government values (above the level for no agreement) is maximized.

Obviously, the Nash solution is a great improvement over the base solutions of the two parties. Because great flexibility was allowed for a great number of variables in identifying the solution, it may be somewhat idealistic. For example, it would suggest setting the tax rate to zero for the new firm, and establishing a high price for the firm. Of course, if tax rate, or some other variable is non-negotiable, the Nash solution could be found for the reduced set of decision variables.

The Nash solution is just one of the desirable Pareto optimal (or non-dominated) alternatives (we haven't indicated all of them here), and may not be the solution that the two parties are most likely to agree upon. It does demonstrate, however, the dramatic joint gains that may be obtained. The primary consideration is to improve upon the status quo and achieve as much of the joint gains as possible.

## 6. QUANTIFICATION OF RISK

Uncertainty can be added to the Ceerovia model to reflect the risk assessments of the buyer and the seller. Of course their separate assessments may differ. Table 1 shows example initial assessments of buyer and seller of some, but not all of the uncertainties. Again the buyer is pessimistic about the domestic market relative to the seller, and the seller is similarly more pessimistic about the global market. Of course, much more uncertainty could have been included (with other uncertain variables or wider input distributions), which we will consider later.

These probability distributions were used to replace the numbers in the appropriate cells of the spreadsheet using a spreadsheet add-in called @RISK. This add-in enables the simulation of resultant probability distributions for buyer value and government value. In effect a large number of scenarios are evaluated where each scenario is based on randomly sampling a number for each of the uncertain variables. A graph of the results for buyer and seller is shown in Exhibit 8.

The outcome values in Exhibit 8 are mostly very strongly negative for each side with a negative mean and considerable downside risk. Neither side would accept this privatization. This pessimism is reminiscent of the certainty base cases in Exhibit 6 where each side was skeptical about the segment of the market that was less known to them.

Suppose as before we consider the case where buyer and seller share information and consolidate their judgments. And suppose each convinces the other party of their market assessment in the segment they understand best (global for buyer and domestic for seller). Assume that they make an agreement to set the local content to 60%. What

Table 1  
Base Risk Assessments

Variable	Buyer Base	Seller Base	Information Sharing
Domestic Market	normal(50,15)	normal(200,15)	normal(200,50)
Global Market	normal(120,15)	normal(10,15)	normal(120,30)
Domestic Market Growth	triangular(2%,5%,7%)	triangular(3%,5%,9%)	--> same
Global Market Growth	triangular(0%,2%,6%)	triangular(0%,2%,3%)	triangular(0%,2%,6%)
Wage/Productiv Incr%	triangular(-5%,5%,15%)	--> same	--> same
Terminal Growth %	triangular(0%,2%,4%)	--> same	--> same
Environmental Liability Multiplier	normal(1.0,.2)	--> same	--> same
<p>Key: a normal distribution is indicated by normal(mean, standard deviation)  a triangular distribution is indicated by triangular(low,most probable,high)  --&gt; same means that the distribution is the same as that of the cell on the left</p>			

would then result from some reasonable assessments of risk? Example assessments are included as the rightmost column of the table above, and the results are shown in Exhibit 9. Note that Exhibit 9 is based on one set of common risk assessments while Exhibit 8 gives each party's value based on their own separate risk assessments.

The results in Exhibit 9 indicate that the buyer faces a much wider distribution and hence more risk than the seller from the same risk assessments. For the seller, the outcomes are all positive, but the buyer faces a substantial chance of losing money from the purchase. This risk to the buyer would suggest that the sale may be hard to bring about, even though the mean outcome may be positive for the buyer.

The risk is even more significant if one includes more of the potential uncertainties. Another case was run where uncertainty was added regarding the future tax rate (triangular(.2,.45,.7), the interest rate (normal(.06,.02)), and revenue was lost due to non-payment of accounts receivable (the percentage paid was triangular(.8,.82,1)). This case was run assuming the same package of investment incentives were negotiated as used in section 5 above. The probability distributions for buyer and seller are shown in Exhibit 10. While the mean outcome for the two parties is significantly positive, the risk to the buyer would make the opportunity unacceptable to nearly all potential acquirers. The question then becomes how to reduce the risk so that the transaction would be acceptable to both parties, and they could then realize the rewards that are possible as indicated by the highly positive average outcome.

## 7. RISK REDUCTION

Consider now the possible methods of reducing risk. The aim here is to narrow the probability distribution for buyer and seller so that the risk can be acceptable, and in this example the concern is greater to reduce the risk to the buyer. This will enable "good" deals to happen, and will also make it more likely that the firm will succeed in its new form. The effort is not to make "bad" deals acceptable. For example, if the means of both buyer value and government value were negative after the best agreement is negotiated, there is no point in narrowing the risk, the deal should be abandoned. In this example, however there are rewards to be gained, if somehow the risk can be reduced.

Some of the methods available to reduce risk are shown in Exhibit 11. The list begins with some ideas that would be appropriate in many business contexts. The first is to conduct market research which would reduce uncertainty about both the size of each segment and their growth rates. Marketing contracts set in place prior to the privatization would of course replace uncertainty with certainty. It would be even better if the contracts were for government purchases as a way of paying down the loan provided by the government; this would reduce the government financial risk at the same time.

Where there is substantial legal risk, government clarification of contracts or the ability to enforce debts can reduce these risks considerably. Government assurances of tax rates and stable interest rates will limit the variation of cash flow. Lines of credit guaranteed by the government can serve to carry the firm through short-term cash crunches.

Both the government and the buyer risk may be reduced by debt for equity swaps. For example, suppose the Ceerovian government owes money to banks in the country of registry of the buyer. These banks may be willing to convert some of that debt for shares in the new firm--perhaps to get their money sooner or to move from no return on investment to a situation with some potential for appreciation. Similarly, if debts are hard to collect, this risk and the risk of high financial leverage may be reduced by having some financing provided by a customer, secured by inventories of finished goods or raw materials.

When the buyer faces risk that is simply beyond acceptability, there are many innovations to the privatization arrangement that may serve both sides. One is to sell not the company but an option on the company, which can be exercised by the buyer either at a fixed time in the future--say--three years, or when fixed conditions are met, for example-- a profitable year. The buyer could be expected to pay some smaller amount for the option, thus giving the seller some immediate value and to pay another amount when they exercise the option. This arrangement gives the buyer great incentive to perform in the short term. Of course, if they are not successful and the company does not become valuable they have nothing to show for their efforts. On the other hand their



downside cost is low since they can walk away from a bad situation with no further costly obligation. This arrangement may also be useful in situations where there is concern that the buyer will strip the firm of assets and resources and then abandon it; they don't own the firm until it is viable and probably worth more as a going concern than its liquidation value.

If the buyer is interested in the assets of the firm, but not ready to pay a satisfactory price for the firm now, it may be beneficial to make a lease-to-buy arrangement. The government gets immediate placement and revenue. The buyer gains some experience operating the assets before making the final decision.

Many multinational buyers are more interested in access to domestic markets than in the enterprise. While the government of Ceerovia would prefer to entice domestic manufacturing, they may find it preferable to sell access to their markets rather than nothing. By liquidating the enterprise at the same time its markets are transferred, the total benefit to the government may be greater. Alternatively, the government may agree to give access to domestic markets for an agreement by the buyer to make a greenfield investment.

In some cases restructuring of enterprises may be necessary before the risk is acceptable to the buyer. The buyer may find that the entire enterprise has little strategic focus and is too vertically integrated. A facility swap with another multinational or another enterprise being privatized may be mutually advantageous.

The probability distributions we have seen for buyer value have displayed much more risk than those for the government. This imbalance can be redressed by transferring buyer risk to the government. This may be done by giving the government a larger share of ownership. In exchange, the government may indemnify the buyer against environmental damage related to past activities. Or it may be in the government's interest to provide some capital earmarked for greenfield projects.

Private ownership of a firm is important for several reasons. It provides strategic control (more than 50% of the voting rights on the board), which is necessary to direct any restructuring of the firm. Operating control is needed to redeploy resources and for hiring and firing of managers. It is important that the buyer have these kinds of control in order to achieve the fundamental aims of privatization (if it weren't important, why privatize?). If these kinds of control are assured for the buyer, the sharing of financial risk and reward may be divided somewhat differently, to the benefit of both parties. Flexible thinking about the sharing of control and risk will open up opportunities for joint gains.

To illustrate some of these risk-reducing ideas, the assumptions used to produce the high-uncertainty case in Exhibit 10 were revised to reflect some changes by government to improve the conditions for success: clarifications and assurances of the tax

rate, fixing the interest rate on a government loan, a contract to purchase a fixed amount of product of the new firm, and government sharing of environmental risk. The resulting probability distributions for buyer and government are shown in Exhibit 12. At this point the buyer will likely find the arrangement attractive, and the government value is also positive and with low risk.

Our illustrative examples have only scratched the surface of quantifying the possibilities for joint gains and for risk reduction in privatization. The opportunities to be exploited are substantial and go beyond what has typically been used in practice. Now that many of the easier privatizations have been done, these ideas may be what is needed to move through the more difficult situations. There is significant incentive to entice privatization ministries and buyers to model the situation and quantify the risks in order to make possible more creative paths to their ultimate aims.

Exhibit 1

Potential Uncertainties in the Privatization Process in a New Market Economy

**BUSINESS**

accounting and control system  
    definitions of terms  
    data accuracy  
    appropriate usage of information  
financial  
    capital availability--short/long term  
    interest rates  
    cost of capital  
    debts-- payable and receivable  
operations  
    availability of qualified labor  
    wage inflation  
    union flexibility  
    productivity  
    production quality  
marketing  
    global competitiveness of products  
        market size/share/growth  
    domestic demand for products  
        market size/share/growth  
    technological improvement in products  
strategic  
    industry structure/company restructuring  
    erosion of buyer firm sales by new firm  
    buyer firm performance  
    buyer firm capacity utilization  
management  
    redeployment of resources  
    effective use of scarce capital  
    grow value of firm  
    individuals take responsibility

**LEGAL**

operative legal framework  
    property rights  
    enforcement of contracts  
    collection of debts  
    jurisdictional legitimacy

**ECONOMIC**

inflation  
growth of GDP & market for products  
currency rate of exchange  
infrastructure  
    telecommunications  
    transportation  
    energy

**ENVIRONMENTAL**

air, water, ground pollution  
cleanup costs  
liability costs

**GOVERNMENT SUPPORT**

guarantees from government  
tax relief  
investment grants  
protection from entrance of competitors  
tariff protection from competitive imports

**POLITICAL**

currency repatriation possibilities  
renationalization of firm  
change of regime

Exhibit 2

Objectives and Performance Measures for Buyer and Seller

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**BUYER**

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<u>Objectives</u>	<u>Measures of Performance</u>
develop a new market	market size market growth
maximize value of new firm	NPV of cash flows
maintain value of existing activities	capacity utilization existing company erosion of existing sales

---

**SELLER**

---

<u>Objectives</u>	<u>Measures of Performance</u>
low unemployment	number of jobs, local wages
increase exports, decrease imports	exports - imports
increase local content of goods produced	% local content
increase investment in local economy	funds invested
increase corporate tax revenue	taxes collected
speed-up tax payment	depreciation period for capital investment
create wealth with government share of firm	NPV of new firm*Govt Share
protect environment	ground/water/air pollution measures

Exhibit 3  
Influence Diagram of Ceerovia Model

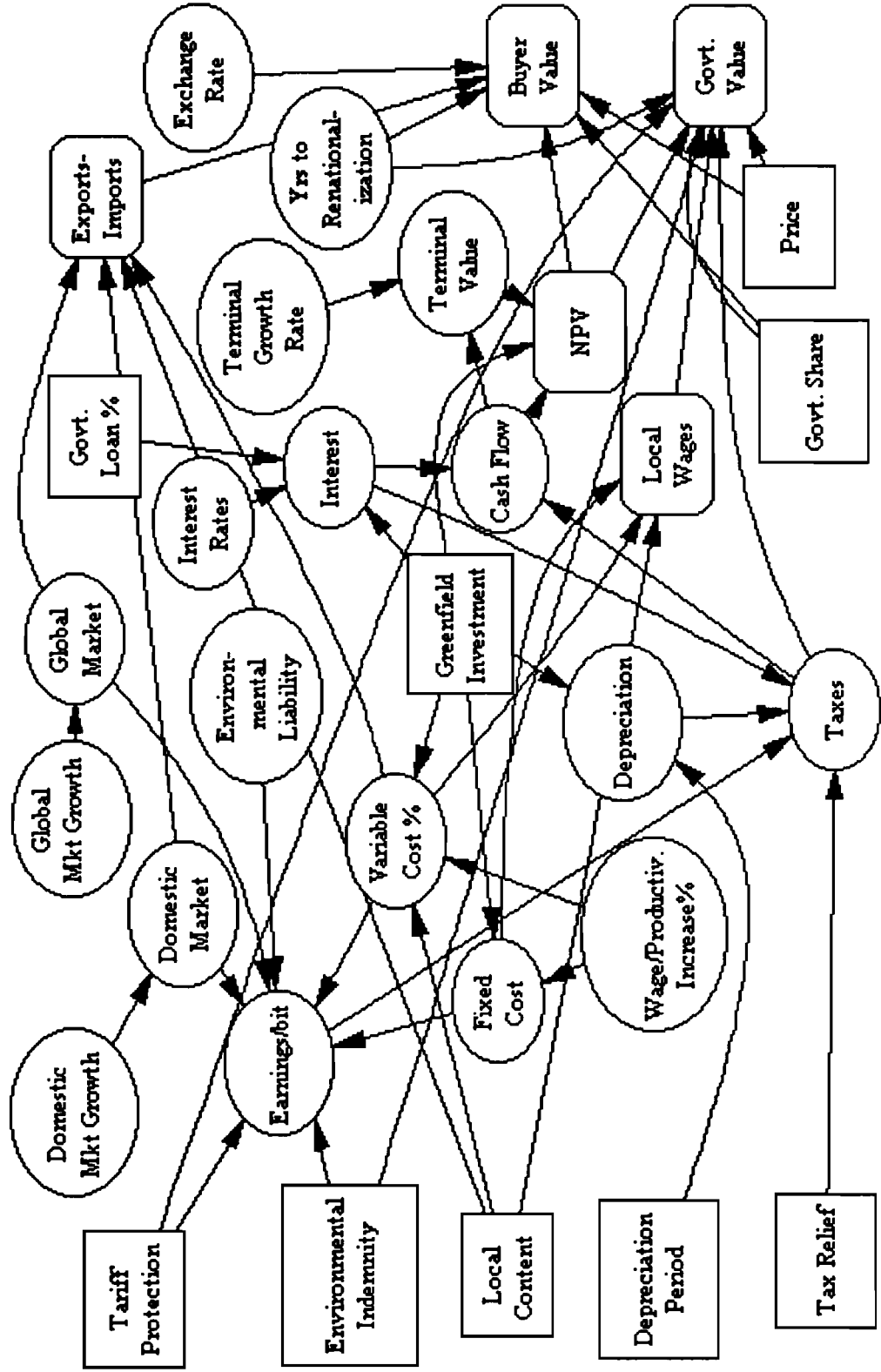


Exhibit 4

Spreadsheet Model With Buyer's Base Assumptions

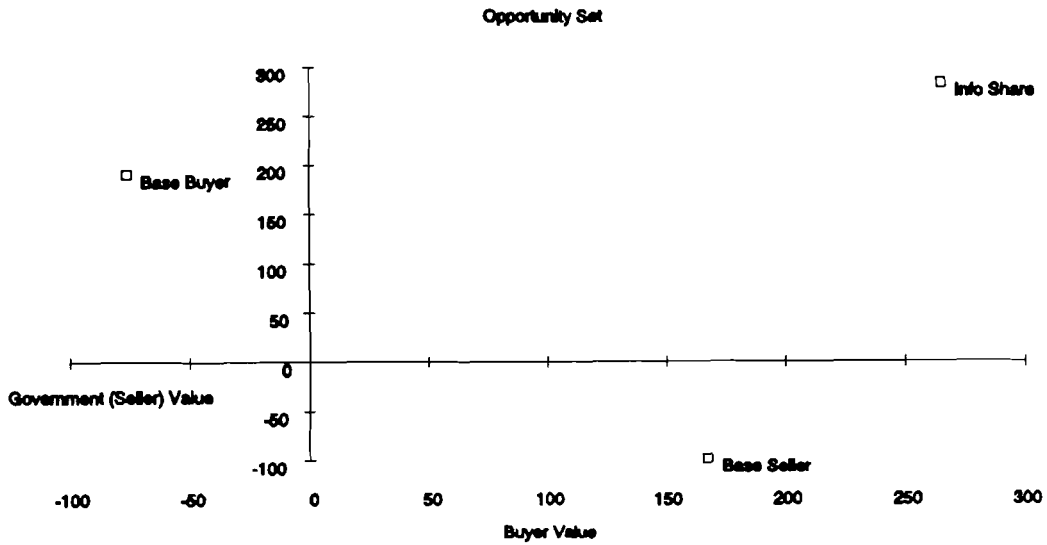
Price	30	Local Content %	80.00%	Tax Rate	45.00%	
Greenfield Invest	0	Govt Loan%	0.00%	IntRate	6.00%	
Enviro Indemn	80.00%	Domes Mkt Gr	5.00%	HurdleRat	9.00%	
Tax Relief Yrs	0	Global Mkt Gr	2.00%	GovtHurdR	7.00%	
Deprec Yrs	20	Wage/ProductivIncr%	5.00%	TerminGrw	2.00%	
Tariff Protection	0.00%	YrsToRenationalizat	50	Xchngrate	1	
Govt Own%	0.00%					
			MILLION CEEROVIAN Cs			
	0	1	2	3	4	
Domestic Market	50.00	52.50	55.13	57.88	60.78	63.81
Global Market	120.00	122.40	124.85	127.34	129.89	132.49
Variable Cost%	55.00%	56.10%	58.41%	60.84%	63.38%	66.06%
Fixed Op Cost	70.00	73.50	77.18	81.03	85.09	89.34
Enviro Liabil		30.00	24.00	15.00	12.00	12.00
EarningsBIT		-2.72	-7.12	-11.49	-17.67	-25.11
Depreciation		0.00	0.00	0.00	0.00	0.00
Taxes		0.00	0.00	0.00	0.00	0.00
Cash Flow Free	0.00	-2.72	-7.12	-11.49	-17.67	-25.11
NPV Free	-46.20					
				Ongoing Terminal Value		0.00
BUYER VALUE	-76.20			Liquidation Book Value		0.00
GOVT VALUE	191.74					

Exhibit 5

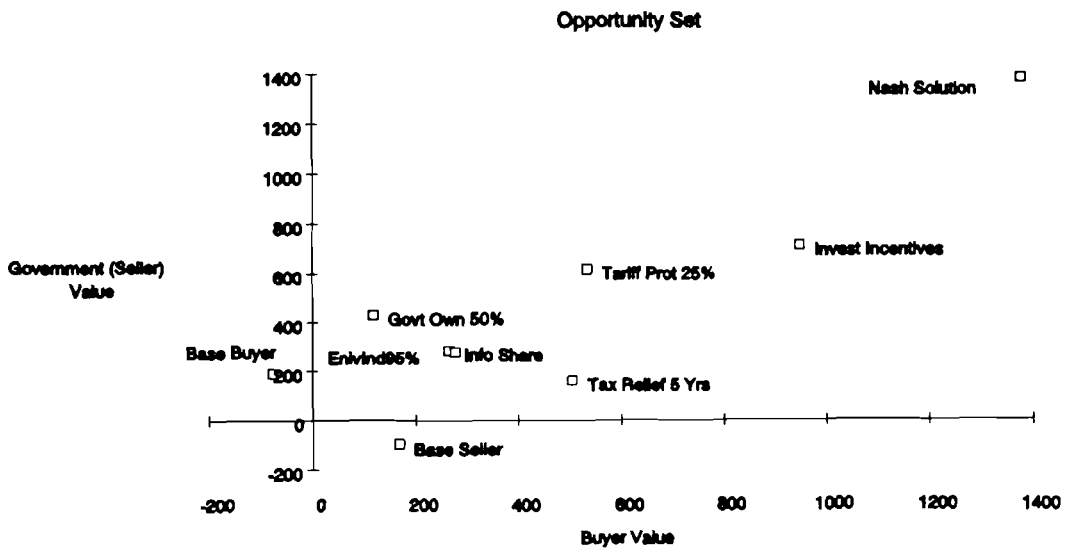
Spreadsheet Model With Seller's Base Assumptions

Price	30	Local Content %	0.00%	Tax Rate	45.00%	
Greenfield Invest	0	Govt Loan%	0.00%	IntRate	6.00%	
Enviro Indemn	80.00%	Domes Mkt Gr	5.00%	HurdleRat	9.00%	
Tax Relief Yrs	0	Global Mkt Gr	2.00%	GovtHurdR	7.00%	
Deprec Yrs	20	Wage/ProductivIncr%	5.00%	TerminGrw	2.00%	
Tariff Protection	0.00%	YrsToRenationalizat	50	Xchngrate	1	
Govt Own%	0.00%					
			MILLION CEEROVIAN Cs			
	0	1	2	3	4	
Domestic Market	200.00	210.00	220.50	231.53	243.10	255.26
Global Market	10.00	10.20	10.40	10.61	10.82	11.04
Variable Cost%	55.00%	49.50%	49.50%	49.50%	49.50%	49.50%
Fixed Op Cost	70.00	73.50	77.18	81.03	85.09	89.34
Enviro Liabil		30.00	24.00	15.00	12.00	12.00
EarningsBIT		31.70	34.63	38.25	40.75	42.74
Depreciation		0.00	0.00	0.00	0.00	0.00
Taxes		14.27	15.58	17.21	18.34	19.23
Cash Flow Free	0.00	17.44	19.05	21.04	22.41	23.51
NPV Free	197.38					
				Ongoing Terminal Value		329.97
BUYER VALUE	167.38			Liquidation Book Value		0.00
GOVT VALUE	-98.27					

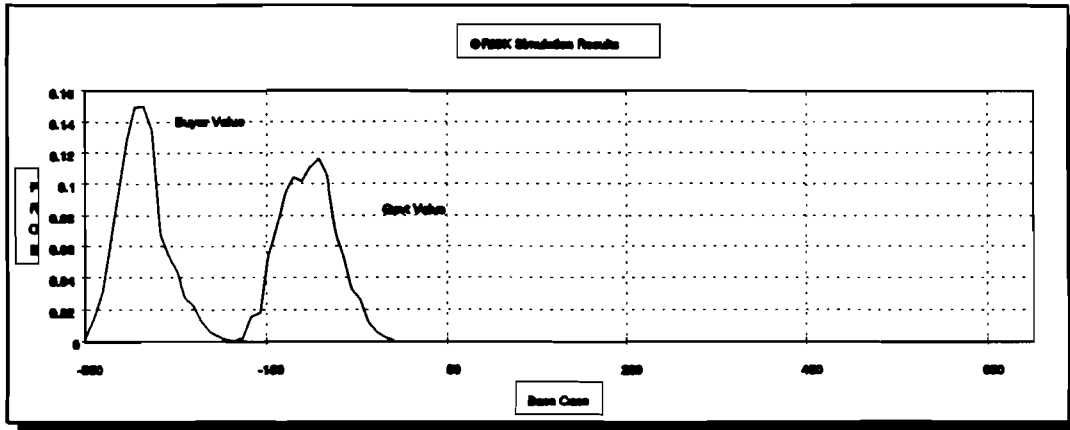
### Exhibit 6 Potential Joint Gains from Information Sharing



### Exhibit 7 Potential Joint Gains from Negotiation



### Exhibit 8 Initial Assessments of Risks for Each Party



### Exhibit 9 Assessment of Risk after Information Sharing

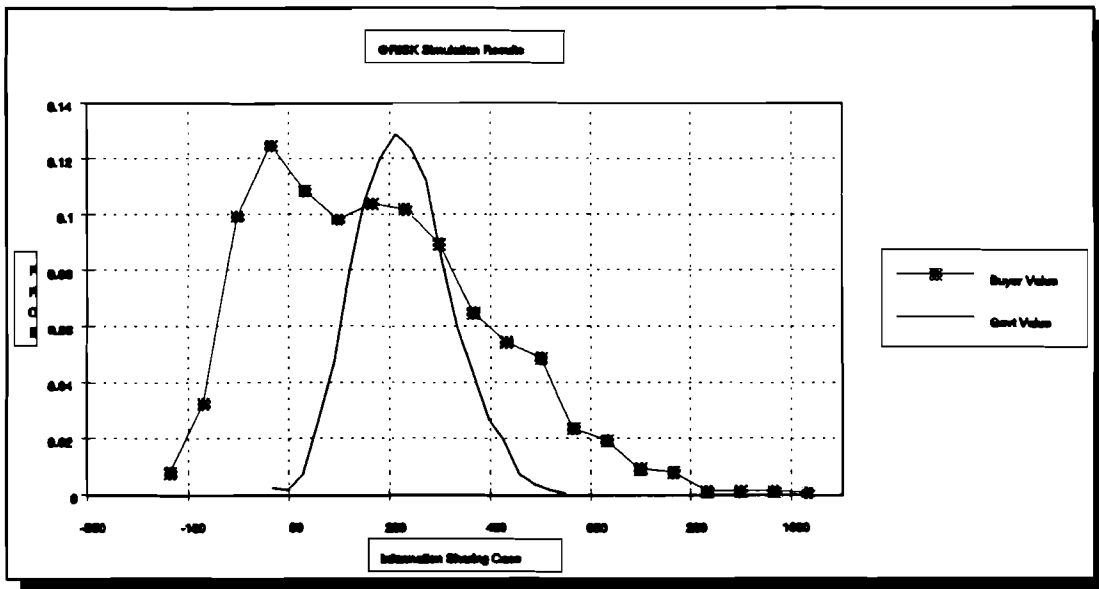
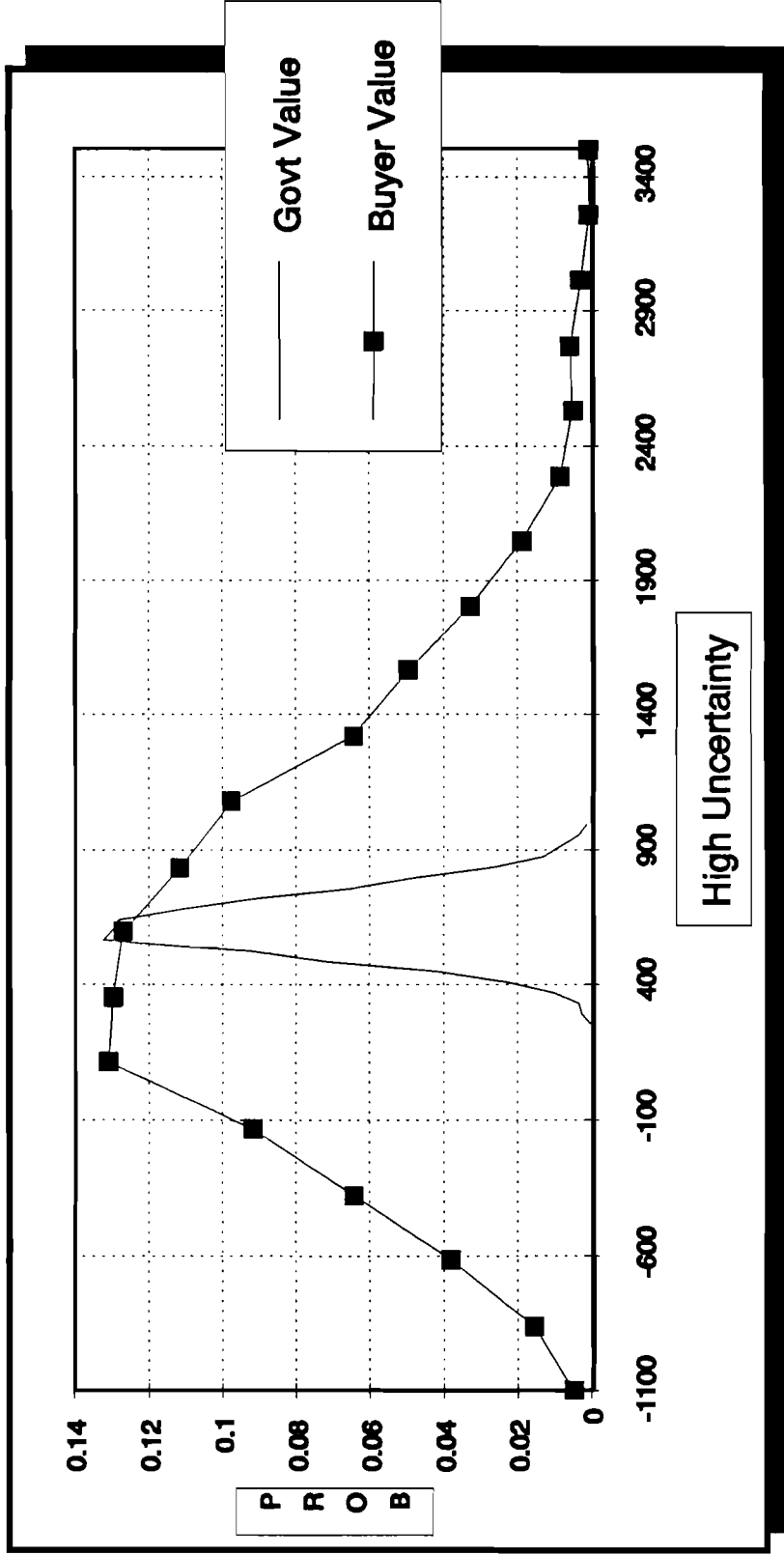




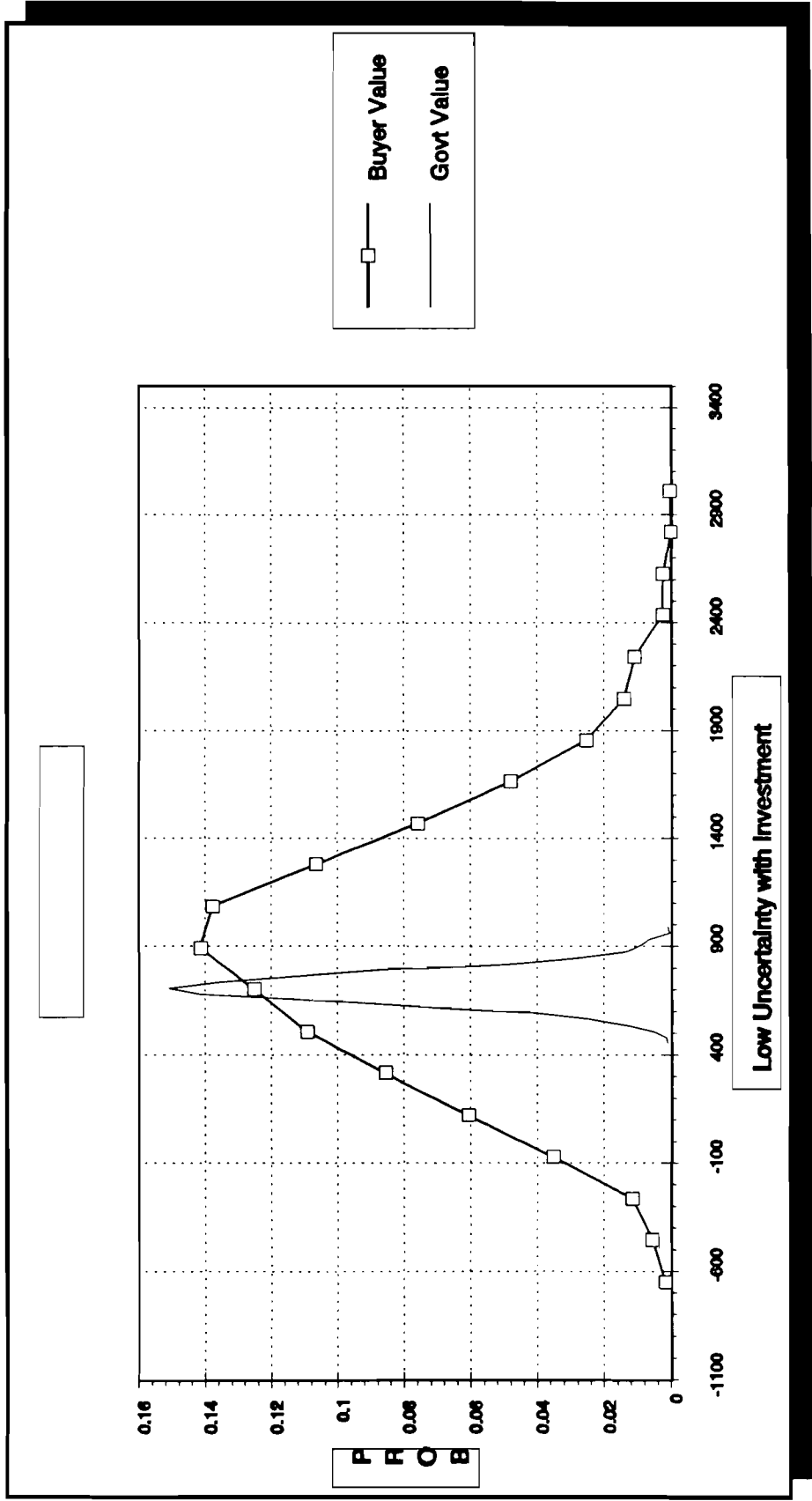
Exhibit 10  
Risk to Each Party with High (Realistic) Uncertainty Included



**Exhibit 11  
Methods to Reduce Risk**

- **reduce business uncertainties**
  - market research
  - marketing contracts
    - perhaps with government purchase, as a way of paying off loan
  
- **reduce legal risk**
  - enforce contracts
  - stabilize payment of debt
  
- **government assurances**
  - eliminate tax uncertainty
  - guarantee line of credit
  - stabilize interest rates
  
- **lessen financial leverage**
  - debt for equity swaps: holders of government debt receive equity
  - supplier or customer provide the financing
  
- **innovations in the privatization arrangement**
  - give the buyer an option to purchase the company
    - . at a fixed time
    - . when fixed conditions are met
  - sell access to the domestic market instead of selling the enterprise
  - provide access to the domestic market for greenfield investment
  - lease-to-buy arrangement for assets of enterprise
  - facility swaps with other multinationals--reduction of vertical integration
  
- **share the risk between government and buyer**
  - government indemnify past environmental damage in exchange for some ownership
  - government provide capital for greenfield projects, buyer for enterprise

Exhibit 12  
Risk to Each Party After Risk Reduction



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