

Risk and Real Estate Investment: An International Perspective

Tom G. Geurts*
Austin J. Jaffe*

Abstract. The literature regarding portfolio analysis for institutional real estate investors has until now largely been concerned with benefits associated with naïve diversification strategies. In this paper, we discuss the prospects that institutional characteristics suggest for risk reduction in internationally diversified portfolios. The risk/return relationship of each country is affected by its own unique institutional environment and therefore there are potential benefits for investors. We argue that, given the significant differences in the institutional framework across countries, there are likely impacts on returns and that this fact deserves the attention of institutional investors.

It makes little sense for economists to discuss the process of exchange without specifying the institutional setting within which the trading takes place, since this affects the incentives to produce and the costs of transacting.

R. H. Coase¹

Introduction

Ever since Markowitz (1952, 1959) laid the groundwork for modern portfolio theory, much is written about the benefits of diversification. Markowitz suggested that it is possible to reduce risk by diversifying across investments without sacrificing return. He provided a solution to the problem of portfolio construction by demonstrating that risk is quantifiable and can be divided into two parts; the *systematic* part, or the portion that is unavoidable once the investor invests in a particular asset class, and the *unsystematic* risk, or the part that can be reduced by creating a mixed-asset portfolio. One aspect of this portfolio selection process can be mixing assets across geographic boundaries. The main argument in favor of international diversification is that foreign investments offer additional diversification potential to further reduce the total risk of the portfolio. Or stated differently, international diversification improves the risk-adjusted performance of a domestic portfolio, provided that the investments have independent price behavior.

The leading finance paradigm of efficient markets stresses these benefits of so-called *naïve* diversification. This strategy is acceptable as long as investors are able to freely move their investments between the capital markets of different countries. In other words, naïve diversification would be the best strategy if international capital markets would be fully integrated and efficient. This may approximately be the case for the markets for stocks and bonds, but it is certainly not true in the global market for real estate. In this

*Institute for Real Estate Studies, The Smeal College of Business Administration, The Pennsylvania State University, University Park, Pennsylvania 16802, USA.
Date Revised—March 1995; Accepted—April 1995.

market, investors face many different institutional barriers.² For example, facing the threat of a revolution, an investor who holds a portfolio consisting of stocks and bonds can quickly sell. However, this is not the case when the investor has real estate holdings. We therefore think that institutional factors are an important issue, especially when evaluating the benefits of investing in real estate. These institutional factors have also generally been neglected in real estate analysis. In general, standard asset pricing models do not take exogenous institutional factors into account, despite the effects they exert on the bundle of rights one owns. Institutional factors can take many forms and shapes. Given that various countries have different ideas towards the creation, distribution and protection of private property, an assessment of the institutional factors affecting property rights seems essential for understanding the investment pattern in real estate. The benefits of investing in real estate in these different countries are therefore ultimately determined by the interactions of these factors.

For real estate, research on the topic of international diversification started with Ibbotson and Fall (1979), who focused on calculating the total value of assets, including real estate, in the U.S. More recent publications on this topic include Hartzell, Hekman and Miles (1986), who examined several diversification categories for real estate investment, Hartzell, Shulman and Wurtzbach (1987), who took a closer look at criteria for regional diversification, and Mueller and Ziering (1992), who analyzed real estate portfolios using a combination of economic and geographic diversification. The basic idea for all of these papers, and for all papers on diversification in general, is that there are likely to be risk-reduction benefits when the returns on the assets are not correlated with each other. Therefore, a well-diversified portfolio should consist of assets from geographic regions with different economic characteristics.

The decision to diversify across geographic boundaries requires the investor to place assets abroad directly. Indeed, as financial markets rapidly globalize and become increasingly integrated, international diversification becomes more attractive to institutional investors. However, academic research has shown that there are at least three possible problems with optimal portfolio selection methods when investing internationally. First, naïve diversification strategies have not always proven to yield sufficient risk-reduction results.³ In addition, the question of the optimal allocation of real estate in international portfolios has not yet been resolved.⁴ Finally, a number of studies have found that investors seem to bias their investments towards the domestic country, despite the prospects of significant gains to diversifying internationally. This phenomenon has come to be known as the "home asset bias."⁵

In this study, we will offer a fresh look at international diversification and provide a possible explanation for these three problems. We go a step further than other studies, by arguing that the institutional characteristics of countries should receive more attention. Or differently stated, our hypothesis is that, given the likely benefits of naïve diversification, international investment analysis should concentrate explicitly on the differing characteristics of countries. In this paper, we describe a number of such institutional factors of importance to investors. We believe that these factors should no longer be exogenous to international portfolio analysis and that the results of further analyses of these factors will be important for future academic research. These findings will also be of interest to institutional investors, national governments, and individual citizens.

This paper proceeds as follows. Section two provides a brief description of the frame-

work in order to discuss the importance of institutional factors for investors. In addition, we argue that information about the institutional framework is of crucial importance and we theorize that imperfect information about the institutional framework leads to the home asset bias. In section three, we review a number of variables, which can be linked to the institutional framework, and their importance for portfolio selection. In section four, we report some correlation results for the factors described in the previous section. Finally, in section five, we present the implications of the findings and a brief conclusion.

Importance of Institutional Factors and the Home Asset Bias

Analysis of the economic consequences of the institutional framework is a vast, growing field that overlaps two disciplines: economics and law.⁶ There is, by now, a growing body of literature on the economics of law. This literature concentrates on the effects that laws exert on the economic environment. The impact of government regulation is something that should also be thoroughly examined with respect to international real estate investment. In the next section, we discuss sixteen variables in four categories that can be linked with the economic consequences of the institutional framework.

The main idea of using these variables, which seems to have been overlooked within the international real estate portfolio literature, is the importance of differing legal-political property factors as well as sociocultural factors across nations. For example, fundamental differences exist in the relative role played by private property rights between nations, the reliance upon private ownership of housing in various cultures and the production of publicly owned housing,⁷ the threat of expropriation and/or state regulation of property, and other institutional factors affecting real estate. Such notions can vary dramatically across nations; indeed, the analysis of societal institutions enables a critical understanding of what distinguishes one nation from another.

In sum, the quality of institutional support and the level of protection of private property are argued to be important proxies for the reliance upon economic efficiency by various regimes. For individual investors, who face uncertain economic and political climates throughout the world, the meaning of private property is a critical consideration. One would therefore expect to find a relationship between a nation's specification of property rights and the value and returns of its assets. Indeed, it is likely that information about the specification of property rights is of crucial importance to investors. We theorize that imperfect information about the institutional framework leads to the home asset bias.

In a 1992 survey, Uppal examined several explanations for the home asset bias.⁸ One possibility is that investors desire to hedge inflation at home. A second hypothesis is that prevailing institutional barriers to foreign investment are sufficiently large to explain the bias. Finally, transaction costs for investing abroad and taxes on income from foreign assets might also be a reason for the bias. After examining several articles, Uppal reached the conclusion that it is unlikely that these three factors are significantly strong to adequately account for the bias observed empirically in portfolios.

Based on the analysis here, we offer a fourth explanation: the institutional risk of investing in a foreign country, when information regarding the institutional framework is imperfect, outweighs the reduction in unsystematic risk due to diversification. In earlier research, preliminary results indicated that investors are aware of these added risks and uncertainties and that they are likely to take these factors into account when arranging

their investment portfolios.⁹ It is hypothesized that investors are faced with significant information costs about the institutional framework abroad (i.e., it is costly to acquire comparable information relative to domestic investments). If so, one should expect the risk premium to be impounded on investments abroad. Investors will not invest abroad so long as their investments will not be compensated for this added risk. This factor provides an incentive for the investor to bias his/her portfolio towards safer investments, namely investment in the home country where the institutional environment is better understood and priced with more certainty.

Description of the Institutional Variables

Given the previous discussion, in this section we identify specific legal-political and sociocultural factors that we think exert important impacts on the risk/return relationship facing institutional investors.¹⁰ We hypothesize that the institutional framework specifies a wide range of social and economic outcomes for a certain country. These outcomes diminish or enhance the economic rates of return for a society's wealth, including the value and return on its real estate assets.

We examined several separate sources in order to find variables that would capture economic as well as so-called "non economic" risks associated with investing in certain countries. We decided to use sixteen variables in four categories, which we think span the various risks regarding the institutional framework for investors diversifying abroad. These categories are: (a) Risk Assessment Variables, (b) Property Rights Variables, (c) Sociocultural Factors, and (d) Foreign Investment Variables. The main data source is the *World Competitiveness Report*, published by the Institute for Management Development and the World Economic Forum (1989, 1993). This is a yearly publication, in which fifty-six countries are examined, in order to analyze how nations compete in international markets, by evaluating strengths and weaknesses. The book provides statistical information for a large number of economic and social factors. In addition to these factors, the publication also offers insights into laws and regulations and the perception of the effectiveness and efficiency of these institutions, based upon annual survey results of executives and economic leaders in their respective countries. We supplemented the data from this publication with data from other sources, on variables not examined in this publication. The availability of additional data determined the criteria for inclusion of a country in the final data set. Ultimately, we settled on thirty-two countries.¹¹

Risk Assessment Variables

First, we examined an index of *political risk*.¹² This index ranks each country in the sample and a higher level of perceived political risk corresponds with a lower standing on the index. Political risk indicates the probability of economic losses due to government actions that could hamper, curtail or preclude investment projects. In addition, political risk assessment considers the possibility of unfair administration of laws, the lack of law enforcement, corruption levels, nationalization and expropriation threats, and conceivably, even the prospects of political revolution. The central issue is that these occurrences are very often unpredictable. Given these considerations, it is expected that higher political risk corresponds with higher required returns.

From another source, we obtained an index for *economic risk*.¹³ This type of risk is defined as considerations that are more closely associated with the macroeconomy of a particular country, and as such it differs in concept from political risk. Aspects such as weak or negative economic growth, inflation and (over)indebtedness are captured by this variable. It is expected that a higher economic risk is associated with a higher required return to the residual claimant.

Another variable in this category is *credit risk* which was obtained from *Institutional Investor* (1992). This variable captures solely the credit risk of a country as proxied by the level of outstanding international debt as a percentage of GDP. In countries with a relatively large financial debt, the probability of default on debt payments is larger. Furthermore, a large debt can result in negative growth of real GDP per capita, as has happened in a number of Latin American countries between 1980 and 1993. For the institutional investor, these aspects constitute a risk factor in terms of investing and securing returns and he/she will therefore demand a risk premium for countries with a high credit risk. The fourth variable is a *financial risk rating* which is similar to credit risk.¹⁴ However, this rating is obtained from another source.

Finally, we obtained data on insurance premiums from *Business Environment Risk Information* in Geneva (1987). In order to determine the insurance premiums, *BERI-rankings* are based upon an index that incorporates various economic, social and political risk factors. A higher standing on this index reflects a lower level of risk. This is intended to be an overall measure of the business climate. The standings on this index are based on the aggregation of subjective assessments of a panel of experts.

Property Rights Variables

The first variable in this category, *security* captures the level of confidence amongst people that their persons and property are protected. We see this as a property rights variable since it is anticipated that the higher the level of confidence that people's property will be protected, the lower the required return should be on their investments. This is consistent with the main argument of this paper that the institutional environment leads to higher wealth, since the reduction in risk leads to an increased demand, which offsets increased supply. The source for this variable is based on survey results conducted by the Institute for Management Development and the World Economic Forum.¹⁵

Furthermore, *arbitrary expropriation* is another variable of crucial importance. There is a large body of literature that examines the effects of expropriation on the behavior of multinational corporations in terms of direct investment and risk premiums.¹⁶ We think similar research is needed for real estate markets. The likelihood of expropriation indicates the possibility that a country's government can acquire the bundle of rights of individuals or firms. Expropriation is viewed as a threat to the security of private property holdings. We expect that the higher the likelihood of expropriation, the higher the required rate of return on investments.

The third variable in this category is *bribery and corruption*, a variable that signals a weak legal framework.¹⁷ It is hypothesized that in countries that have weak private property rights protection, bribery and corruption are likely to be higher than in those countries with stronger legal protection. Bribery and corruption are likely to hamper economic activity by raising transaction costs for investors. In the market for real estate, where transaction costs are already high, this factor means an extra impediment is in

place. Therefore, investors will demand a higher return in countries where bribery and corruption are more prevalent. Bribery and corruption are likely to be correlated with political risk. Rampant bribery and corruption by the regime of a country can lead to unrest and opposition by the people.

Entrepreneurship and innovation is another variable in this category. We hypothesize that entrepreneurial and innovative activity are more likely to occur in environments in which property rights are well protected.¹⁸ On the other hand, it can be argued that entrepreneurship is more likely to take place in countries where high returns are to be expected. In such countries entrepreneurs are willing to take added risks, since they anticipate that they will be compensated for risk bearing. Entrepreneurship is, in this case, the source of these higher returns. This variable has also been taken from the results of a survey conducted by the Institute for Management Development and the World Economic Forum on whether managers generally lack or possess a sense of entrepreneurship in each country.

The last variable is the protection of *intellectual property rights*.¹⁹ This factor is again based on survey results and measures the perception of the levels of protection of intellectual property. It is expected that countries in which intellectual property is better protected will have a lower risk premium than countries where intellectual property rights protection is weak.

Sociocultural Factors

The first variable in this category is the *life expectancy* of a person at birth. Life expectancy is a type of socioeconomic variable that is included in this study to capture any risk premia attached to social aspects of life such as a clean environment and health care. These aspects will likely exert a positive influence on the investment climate.

A similar argument can be made for the next two variables in this category: *illiteracy* and the *quality of living*. Illiteracy measures the percentage of people in a country who cannot read nor write. This variable can function as an indicator of the skills of the labor force and the lack of sophistication of consumers. Investors are likely to accept a lower return in countries with low levels of illiteracy. Quality of living is another survey variable and measures the assessment of people's living standards compared with those in major competing countries. It is expected that the higher the quality of living index, the less riskier the investment.

The fourth variable in this category is a variable that was found to be interesting in previous research.²⁰ This variable is the percentage of *homeownership* and is based upon information provided by particular sources for each of the thirty-two countries. The percentage of homeownership is one indication of the historical relationship between the level of property rights and their protection by the state. One would expect that the higher the percentage of homeownership, the stronger is the protection of the property rights climate for owners and investors, *ceteris paribus*. If the citizens of a country are motivated to buy houses and maintain ownership interests, and if subsequent purchasers are willing to bear investment risks, private investment in such a country tends to be favorably regarded. In addition, since citizens of a country have superior information about their own country compared with foreigners and therefore, are presumably better able to estimate the risks involved with making sizable investments such as is required by

homeownership, this factor could favorably signal foreign investors that the investment climate is good.

Foreign Investment Variables

There are two variables in this category: the *degree of foreign control* and the *treatment of foreigners*. The degree of foreign control indicates the managerial control investors can exercise over companies in the country in question. The treatment of foreigners captures how they are treated vis-à-vis citizens of the country in question.

Restrictions on foreign ownership in general, can limit the possibility of acquiring a bundle of rights in a particular country if investors are not citizens of that country. Thus, we expect that the greater the number of restrictions on foreign ownership, the higher the required rate of return. The treatment of foreigners can also function as an indicator of the institutional framework. If foreign investors are treated differently (e.g., worse than domestic investors), this finding would indicate that their property rights are weakly protected and they would be expected to require an additional risk premium to compensate for this cost.

Results of the Empirical Analysis

The first empirical results in this study examine the correlations between relationships of a number of risk assessment variables. The correlation matrix for these variables is presented in Exhibit 1.

The correlation results for all of the risk assessment variables clearly show that they are highly correlated and capture similar information. In particular, these risks appear to be

Exhibit 1
Correlation Matrix of the Risk Assessment Variables

	Political Risk	Economic Risk	Credit Risk	Financial Risk Rating	BERI-Rankings
Political Risk	1.0000 .0000				
Economic Risk	.6808 .0001*	1.0000 .0000			
Credit Risk	.8202 .0001*	.6914 .0001*	1.0000 .0000		
Financial Risk Rating	.8772 .0001*	.8016 .0001*	.8573 .0001*	1.0000 .0000	
BERI-Rankings	.7462 .0001*	.6223 .0001*	.8708 .0001*	.7839 .0001*	1.0000 .0000

P-stats for a one-tailed *p*-test appear under the correlation coefficients. The null-hypothesis is $\rho=0$, for no correlation.

*The criterion for rejection is at the 1% level.

Sources: Institute for Management Development and the World Economic Forum (1993), Political Risk Services (1993), and *Business Environment Risk Information* (1987).

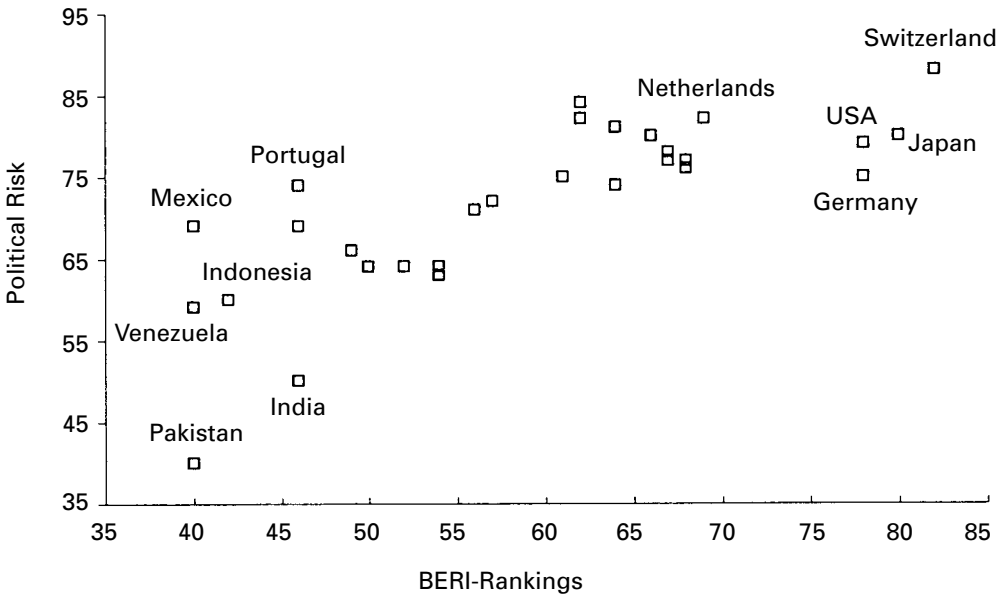
highly correlated with the BERI-rankings which are used to calculate insurance premiums. Insurance companies appear to be doing a good job in determining the size of the premiums associated with political risk for the countries evaluated in this study.

In Exhibit 2, we show the graphical relationship between political risk and the BERI-rankings. Clearly, four countries, (i.e., Switzerland, Japan, USA and Germany), have superior investment climates as indicated by their relatively low political risk assessment. These countries are separated by a relative wide gap from the next set of countries, in terms of BERI-rankings. At the other end of the spectrum, potentially volatile countries such as Pakistan and India can be found. These two countries have often been on the brink of war over the last three decades. Furthermore, Venezuela can also be found here, a country that recently reversed its free market policies. Finally, Indonesia appears here, where ethnic strife is still a problem.

Given the results of the correlations between the risk assessment variables, we present the correlation results using political risk as the primary risk assessment variable in conjunction with several other variables. These results are reported in Exhibit 3.

As can be seen in Exhibit 3, we find encouraging results in terms of the correlation between several institutional variables. In particular, we find that political risk and security are highly correlated with both arbitrary expropriation and corruption. Given the fact that arbitrary expropriation is a political risk factor, this result is not surprising. Standard analyses of political risk tends to focus on arbitrary expropria-

Exhibit 2
Relation between Political Risk and BERI-Rankings



A higher standing on the index for political risk corresponds with a lower political risk.
Sources: Institute for Management Development and the World Economic Forum (1993), and Business Environment Risk Information (1987).

Exhibit 3
Correlation Matrix of the Other Variables

	Political Risk	Security	Arbitrary Expropriation	Bribery & Corruption	Entrepreneurship & Innovation	Intellectual Property Rights	Life Expectancy	Illiteracy	Quality of Living	Home-ownership	Foreign Control	Foreign Treatment
Political Risk	1.0000											
Security	.0000	1.0000										
Arbitrary Expropriation	.6195	.6462	1.0000									
Bribery & Corruption	.0002*	.0001*	.0000	1.0000								
Entrepreneurship & Innovation	.7709	.5345	.6561	.0001*	1.0000							
Intellectual Property Rights	.0001*	.0016*	.0001*	.0000	.0717	1.0000						
Life Expectancy	.0556	.0924	.0893	.0717	.6966	.0000	1.0000					
Illiteracy	.7627	.6149	.6270	.6966	.0000		.7241	1.0000				
Quality of Living	.8523	.5239	.6661	.8134	.1646	.0000	.7241	.0000	1.0000			
Homeownership	.0001*	.0021*	.0001*	.0001*	.3680	.0000	.7241	.0000	.0001*	1.0000		
Foreign Control	.8184	.4683	.5789	.6528	.0164	.7241	1.0000		.0001*	.0000		
Foreign Treatment	.0001*	.0069*	.0005*	.0001*	.9289	.0001*	.0000	1.0000	.0001*	.0000		
	-.8462	-.4412	-.4883	-.6057	-.1068	-.6821	-.8459	1.0000				
	.0001*	.0115*	.0046*	.0002*	.5609	.0001*	.0001*	.0000	1.0000			
	.7025	.4377	.6528	.6760	.0732	.7686	.6442	-.5905	.0000	1.0000		
	.0001*	.0122	.0001*	.0001*	.6907	.0001*	.0001*	.0004*	.0000	.0000		
	-.6523	-.2797	-.4607	-.5858	-.1319	-.7607	-.6570	.4972	-.5518	.0000	1.0000	
	.0001*	.1210	.0080*	.0004*	.4719	.0001*	.0001*	.0038*	.0011*	.0000	.0000	
	-.0132	-.3935	.0565	.1891	.0259	.1666	.1716	-.0140	.0967	-.3152	.0000	1.0000
	.9427	.0259	.7589	.3001	.8881	.3622	.3476	.9393	.5986	.0789	.0000	.0000
	-.5132	-.5564	-.3539	-.1897	-.0672	-.4031	-.3146	.4161	-.1872	.4128	.4426	1.0000
	.0027*	.0009*	.0470	.2985	.7149	.0222	.0795	.0178	.3050	.0189	.0112	.0000

P-stats for one-tailed *p*-test appear under the correlation coefficients. The null-hypothesis is $\rho=0$, for no correlation.

*The criterion for rejection is at the 1% level.

Sources: Institute for Management Development and the World Economic Forum (1993), Political Risk Services (1993), and *Business Environment Risk Information* (1987).

tion, clearly an aspect of international investment analysis, which would certainly be expected to affect returns. It is interesting, if not surprising, to note that in countries where environments are perceived to contain high political risk, corruption is also high. A lack of enforcement of societal laws can induce bribery and other forms of corrupt behavior.

Entrepreneurship and innovation is not correlated with any other variable; this result encourages explorations in future research. One would expect that entrepreneurship and innovation would be correlated with corruption and bribery. In an environment in which the entrepreneur needs to bribe in order to get resources or permissions, one would not expect entrepreneurship to flourish. Apparently entrepreneurs are not hampered in their activity, presumably they are innovative enough to circumvent corrupt practices.

On the other hand, intellectual property rights is correlated with all other variables, except the possibility of foreign control and the treatment of foreigners. It makes sense that the protection of intellectual property rights is independent of these two variables, but is related to other variables denoting the institutional framework. Countries with high standards of living are more likely to protect intellectual property rights. Conversely, the protection of intellectual property rights is given much less importance in nations where poor social and economic conditions affect the basic qualities of life. The same result holds true for life expectancy.

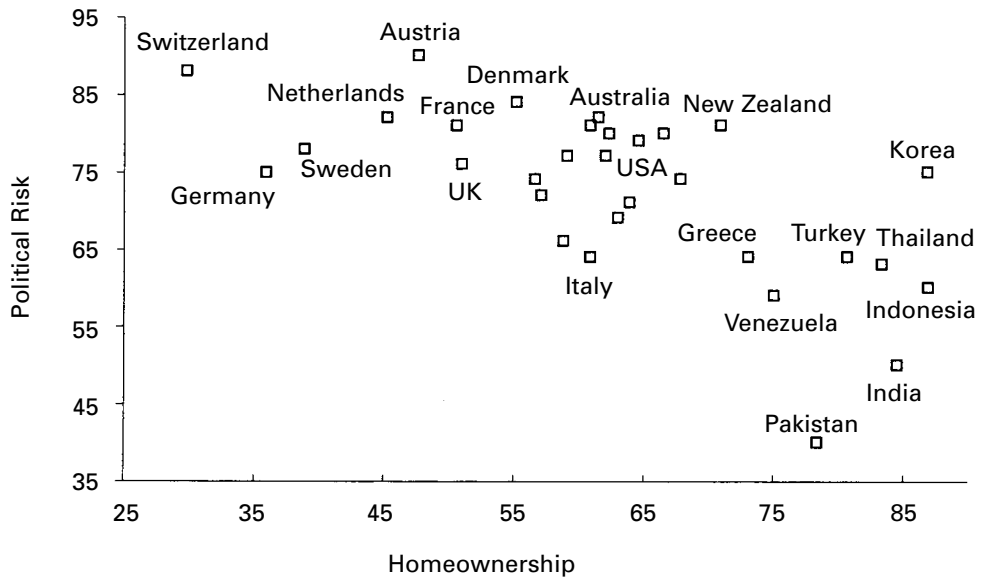
Life expectancy, illiteracy and the quality of living are highly correlated with each other. For example, a longer life expectancy relates to higher literacy. Life expectancy, illiteracy and the quality of living are also correlated with all other variables except the variables capturing the possibility of foreign control and the treatment of foreigners. Therefore, these sociocultural variables do not seem to be interesting for further research, but the latter two, the possibility of foreign control and the treatment of foreigners, are. The possibility of foreign control of assets seems especially encouraging, given its independence of all other variables.²¹

Finally, it is important to note that the results for the homeownership variable in Exhibit 3 are almost always significant and negatively correlated with the property rights variables. Exhibit 4 provides a graphical depiction of political risk and homeownership.

Note that the correlation coefficient is -0.6523 and is highly significant. At first glance these results seem contradictory to prior expectations. However, explaining homeownership rates appears to be significantly complex to be able to be captured by a single metric. For example, nations with the lowest homeownership levels are amongst the countries with the highest political stability. These are precisely the same European countries with the strongest social welfare states: the German-speaking countries (Austria, Germany, and Switzerland), the Netherlands, and Sweden. Government policies in these countries appear to reduce political risk by endowing their citizens with social housing and a relatively large state involvement in the provision of housing services.

In the developing countries in our sample, political instability occasionally becomes a reality. We observe that in these countries homeownership is often high. One potential explanation is a social-cultural one: a predominance of peasant-owned farms in large rural areas is often a fact in many parts of the world.

Exhibit 4
Relation between Political Risk and Homeownership



A higher standing on the index for political risk corresponds with a lower political risk.

Sources: Institute for Management Development and the World Economic Forum (1993), and other sources.

Implications and Conclusions

This study identifies several institutional variables to be considered in future work in international real estate portfolio analysis. We discuss several possible factors in order to be able to empirically test the proposition that certain institutional framework considerations may be useful and perhaps even important, in explaining and predicting the expected rates of return on international assets.

Political risk is highly correlated with most of the examined variables. For example, the possibility of arbitrary expropriation of the legal title to property is a political risk factor. However, political risk encompasses more than this alone, e.g., a low level of security and high levels of bribery and corruption. One notes that political risk is also highly correlated with sociocultural aspects, such as a low life expectancy at birth, a high level of illiteracy and a low level of quality of living. Clearly, in countries that promise high political risk for institutional investors, local inhabitants inevitably suffer. Arguably, there is a direct relation between political risk and these sociocultural factors: when the level of political risk is high, the level of investment will be low, given the required risk premium. Therefore, the economic situation for inhabitants of that country will be weak and will presumably remain weak, until the institutional environment is more hospitable to economic development and investment.

Another interesting finding is that homeownership is too complex to function as a single index for the investment climate. The rate of homeownership appears to be highly

related to the lack of an expropriation threat. While this is the case, one should be cautious in applying this result to all regions of the world. For example, one is less likely to expect expropriation in highly developed countries than in less developed countries, where the legal system is often more volatile. Of the high income countries, homeownership is highest in the English-speaking countries,²² where the common law tradition raises the social cost of expropriation over time.²³ The preliminary evidence presented in this paper suggests that homeownership rates may indeed be related to the type of legal system employed.

These results provide encouragement that legal institutions may be an important factor of consideration, despite being disregarded or deemed exogenous to asset pricing models for many years. Institutional risk is an integral part of the economic activity in the markets of the world. Using a number of variables, it becomes possible to apply formal international asset pricing models, in order to determine the magnitude in which legal institutions exert price effects. For example, it would be interesting to analyze the impact of *political risk* on the returns of institutional investors. Other variables that seem to be promising for usage in these models are *security, entrepreneurship and innovation, foreign control, foreign treatment* and *homeownership*. With further empirical testing, we may be able to understand more about the nature and impact of these institutional effects. If these findings can be generalized, this has important implications for international investors, national governments, and individual citizens. Further research is under way along these lines.

Notes

¹Coase (1992), p. 718.

²We adhere to the description of institutions given by Douglass C. North: "In the jargon of the economist, institutions define and limit the set of choices of individuals." See North (1990), p. 4.

³See, for example, Ziobrowski and Curcio (1991), or Ziobrowski and Boyd (1991).

⁴There also remain questions about the optimal allocation for *domestic* portfolios. See, for example, Fogler (1984), Webb, Curcio and Rubens (1988), or Giliberto (1992).

⁵See, for example, Uppal (1992).

⁶In addition, related fields in social science are also relevant, for example, political science and sociology.

⁷For a related discussion, see Jaffe (1992).

⁸See Uppal (1992).

⁹See Geurts and Jaffe (1993).

¹⁰An important factor, which we do not discuss in detail in this paper, is exchange rate risk. For an analysis of this factor, see Ziobrowski and Curcio (1991).

¹¹These countries are: Australia, Austria, Belgium/Luxembourg, Canada, Chile, Denmark, Finland, France, Germany, Greece, India, Indonesia, Ireland, Italy, Japan, Malaysia, Mexico, The Netherlands, New Zealand, Norway, Pakistan, Portugal, South Africa, South Korea, Spain, Sweden, Switzerland, Thailand, Turkey, U.K., USA, and Venezuela.

¹²There has been considerable attention paid to political risk analysis. See, for example, Agmon (1985), or Gupta (1990).

¹³Political Risk Services (1993).

¹⁴Political Risk Services (1993).

¹⁵Institute for Management Development and the World Economic Forum (1989, 1993).

¹⁶See, for example, Eaton and Gersovitz (1984), Mohtadi (1990), or Cole and English (1991).

¹⁷See, for example, Tullock (1974), or Shleifer and Vishny (1993).

¹⁸See, for example, North and Thomas (1973), or Rosenberg and Birdzell, Jr. (1986).

¹⁹See, for example, Kitch (1980), Landes and Posner (1989), or Besen and Raskind (1991).

²⁰See Geurts and Jaffe (1994).

²¹In a previous study, foreign ownership in relation to expected returns was evaluated, without much success. We suspected that the data was insufficient to capture all aspects of the regulation of foreign ownership (Geurts and Jaffe 1993).

²²See Exhibit 4. The U.K. is the exception: this country resembles more and more the other European social welfare states.

²³See Jaffe (1992).

References

- Agmon T., *Political Economy and Risk in World Financial Markets*, Lexington, Mass.: Lexington Books, 1985.
- Besen, S. M. and L. J. Raskind, An Introduction to the Law and Economics of Intellectual Property, *Journal of Economic Perspectives*, Winter 1991, 5, 3–27.
- Business Environment Risk Information*, Geneva: 1987.
- Coase, R. H., The Institutional Structure of Production, *American Economic Review*, September 1992, 82, 713–19.
- Cole, H. L. and W. B. English, Expropriation and Direct Investment, *Journal of International Economics*, May 1991, 30, 201–27.
- Eaton, J. and M. Gersovitz, A Theory of Expropriation and Deviations from Perfect Capital Mobility, *Economic Journal*, March 1984, 94, 16–40.
- Fogler, R. H., 20% in Real Estate: Can Theory Justify It? *Journal of Portfolio Management*, Winter 1984, 10, 6–13.
- Geurts, T. G. and A. J. Jaffe, International Diversification Strategies as if Property Matters, Working Paper No. 93-06, The Pennsylvania State University, April 1993.
- , Property Rights and International Portfolio Management: Implications for Real Estate Investment, Working Paper No. 94-20, The Pennsylvania State University, November 1994.
- Giliberto, S. M., The Allocation of Real Estate to Future Mixed-Asset Institutional Portfolios, *Journal of Real Estate Research*, 1992, 7:4, 485–91.
- Gupta, D. K., *The Economics of Political Violence*, New York: Praeger, 1990.
- Hartzell, D. J., J. S. Hekman and M. E. Miles, Diversification Categories in Investment Real Estate, *AREUEA Journal*, Summer 1986, 14, 230–54.
- Hartzell, D. J., D. G. Shulman and C. H. Wurtzbaach, Refining the Analysis of Regional Diversification for Income-Producing Real Estate, *Journal of Real Estate Research*, 1987, 2:2, 85–95.
- Ibbotson, R. G. and C. L. Fall, The United States Market Wealth Portfolio, *Journal of Portfolio Management*, Fall 1979, 6, 82–92.
- Institute for Management Development and the World Economic Forum, *World Competitiveness Report*, Geneva: 1989.
- , *World Competitiveness Report*, Geneva: 1993.
- Institutional Investor*, International Edition, New York: October 1992.
- Jaffe, A. J., Comparative Legal Systems as a Predictor of Housing Policy, Working Paper No. 92-03, The Pennsylvania State University, March 1992.
- Kitch, E. W., The Law and Economics of Rights in Valuable Information, *Journal of Legal Studies*, December 1980, 9, 683–723.
-

- Landes, W. M. and R. A. Posner, An Economic Analysis of Copyright, *Journal of Legal Studies*, June 1989, 18, 325–63.
- Markowitz, H., Portfolio Selection, *Journal of Finance*, 1952, 7, 77–91.
- , *Portfolio Selection: Efficient Diversification of Investments*, New York: John Wiley, 1959.
- Mohtadi, H., Expropriation of Multinational Firms: The Role of Domestic Market Conditions and Domestic Rivalries, *Economic Inquiry*, October 1990, 28, 813–30.
- Mueller, G. R. and B. A. Ziering, Real Estate Portfolio Diversification Using Economic Diversification, *Journal of Real Estate Research*, 1992, 7:4, 375–86.
- North, D. C. and R. P. Thomas, *The Rise of the Western World*, New York: Cambridge University Press, 1973.
- North, D. C., *Institutions, Institutional Change and Economic Performance*, New York: Cambridge University Press, 1990.
- Political Risk Services, *International Country Risk Guide*, Syracuse, N.Y.: 1993.
- Rosenberg, N. and L. E. Birdzell, Jr., *How the West Grew Rich*, New York: Basic Books, 1986.
- Shleifer, A. and R. W. Vishny, Corruption, *Quarterly Journal of Economics*, August 1993, 108, 599–617.
- Tullock, G., Corruption and Anarchy, in G. Tullock, editor, *Further Explorations in the Theory of Anarchy*, Blacksburg, Va.: University Publications, 1974.
- Uppal, R., The Economic Determinants of the Home Country Bias in Investors' Portfolios: A Survey, *Journal of International Financial Management and Accounting*, Fall 1992, 4, 171–89.
- Webb, J. R., R. J. Curcio and J. H. Rubens, Diversifications Gains From Including Real Estate in Mixed-Asset Portfolios, *Decision Sciences*, Spring 1988, 19, 434–52.
- Ziobrowski, A. J. and J. W. Boyd, Leverage and Foreign Investment in U.S. Real Estate, *Journal of Real Estate Research*, 1991, 7:1, 33–57.
- Ziobrowski, A. J. and R. J. Curcio, Diversification Benefits of U.S. Real Estate to Foreign Investors, *Journal of Real Estate Research*, 1991, 6:2, 119–42.