
INTERNATIONAL REAL ESTATE INVESTMENT RISK ANALYSIS

By Herve A. Kevenides, CRE

The late 1980s and early 1990s marked a burgeoning interest in international estate investment among United States institutions. Many investors believed that investment in international real estate could enhance overall performance by increasing returns and reducing portfolio volatility. During the late 1990s, the impetus for investing in international real estate came from the poor performance of American real estate during the 1987 to 1992 period. Investors were concerned about the difficulty of selling under-performing real estate assets during a period of significant over-production and weak demand.

By 2000, the Euro was beginning to have a remarkably beneficial effect on Europe. It integrated the 11 countries' financial systems, decreasing the cost of capital by creating a deeper, more liquid market. Many European Union (EU) countries support EU enlargement to include the current ten accession (2004) candidates—Malta, Hungary, Poland, Cyprus, the Czech Republic, Slovakia, Estonia, Latvia, Lithuania, and Slovenia. Other countries being considered for membership later on in the decade include Switzerland, Norway, Iceland, Bulgaria, Romania, and Turkey.

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Current EU countries would prefer that new members be wealthier nations, with Switzerland and Norway as the most popular candidates. This preference is linked to the common perception that admitting poorer countries to the EU could unleash substantial labor migration flows. The precise scale of migration flows from the accession candidates is difficult to predict. Estimates based on the post-war German experience suggest that about 3.5% of the population of the 10 new members (1% of the current EU population) will seek jobs in Western Europe.

Recently, the amount and cost of capital have respectively increased and declined. On average, European companies pay more than half a percentage point less for their capital than if the Euro did not exist. More than \$600 billion were raised last year. This means that more Euro-denominated bonds were issued in 2001 than dollar-denominated bonds. A return to growing rents and overall economic health is likely to occur by 2005 in Paris, Milan, and Brussels. Markets like London, Frankfurt, Stockholm, and Madrid will continue to shift sideways during the next three years.

IMPLICATIONS OF THE NEW GLOBAL ECONOMY

The post-industrial age began soon after World War II in the United States and arrived in Western Europe and Japan in the 1960s. Its distinguishing characteristic is a declining emphasis on material goods and a growing interest in quality of life. Quaternary activities steadily expand, resulting in an elaborate division of labor and supplying a whole new set of societal needs. Service activities including banking, retail, telecommunications services, and public sector activities, such as education and medical care, have grown in importance. However, this does not mean that manufacturing is on the way out.

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The New Economy reflects a willingness to undertake massive risky investment in innovative information technology. This, when combined with a

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decade of improvements in the U.S. financial markets, down-sizing of the Federal government, and efforts by corporations to cut costs and increase efficiency, has had a profound impact on the competitiveness of the American economy.

The Institute for International Economics, a Washington think-tank, expects that between 30% and 40% of global financial assets will end up denominated in Euros (with between 40% and 50% in dollars, and the rest in yen and a few other currencies). This would imply a shift of between \$500 billion and \$1 trillion into Euros, primarily out of dollars, as investors and central banks reshuffle their portfolios.

CHALLENGE OF INTERNATIONAL REAL ESTATE INVESTMENT

International real estate investment represents considerable decision-making, organization and managerial challenges above and beyond the problems of achieving the desired cash flows at the building level. These challenges are accentuated by the time-distance gap from the United States and the different socio-economic and cultural structures associated with individual national markets.

International real estate investment requires a concentrated scrutiny of the problems and opportunities linked to such decisions. A number of macro issues must be examined to reduce systematic risks for portfolio allocation across particular nations. By extension, international diversification assists, but does not remove, systematic risks.

One of the most popular means of international real estate investment is a country fund. Using country funds, investors can speculate in a single

foreign market with minimal costs, construct their own personal international country portfolios using country funds as building blocks, and diversify into emerging markets that are otherwise inaccessible. Some of the most common variables in the initial winnowing process used to determine the economic desirability of a nation for real estate investment are gross domestic product (GDP), per capita income, and the percentage of GDP devoted to service industries.

CALCULATING AND ANALYZING VALUE AT RISK

Value at Risk (VAR) is the amount of money an institution could make or lose from changes in the price of the underlying assets. VAR reduces a firm's total market risk to a single number. In other words, VAR is a statistical estimate based on historical data. Most firms are more worried about what they can lose if the markets move against them. Consequently VAR has become a measure of potential losses rather than a measure of potential gains. The VAR concept incorporates two central elements of risk: (1) the sensitivity of a portfolio to changes in underlying prices and (2) the volatility of the underlying prices.

The former reflects how well the portfolio is hedged (the better hedged it is, the less sensitive to price changes) and the latter, the likelihood of large price fluctuations. The size of the price change is inextricably linked with the holding period. The longer the holding period, the greater the possibility that price changes will lead to a higher potential loss.

There are three main approaches to calculating value at risk:

1. The correlation method, a deterministic approach also known as the variance/covariance matrix method. According to the correlation method, the change in the value of the position is calculated by combining the sensitivity of each component to price changes in the underlying asset, with a variance/covariance matrix of the various components' volatilities and correlation.
2. Historical simulation. This approach calculates the change in the value of a position using the actual historical movement of the underlying asset, but starts from the current value of the asset. It does not require a variance/covariance matrix.

3. The length of the chosen historical period has an impact on the results. If the period is too short, it may not capture the full variety of events and relationships between the various assets and within each asset class. If it is too long, it may be too stale to predict the future. The advantage of this method is that it does not require the user to make any explicit assumptions about the correlation and dynamics of the risk factors, since the simulation follows every historical move.

4. Monte Carlo simulation, a technique for dealing with complex resource allocation problems that cannot be solved by mathematical analysis. This technique involves creating a typical life history of a system that represents the actual problem and its rules of operation. Repeated runs of the simulation, slightly altering the operating rules each time, enable experimentation aimed at discovering methods of improving the performance of the system.

The Monte Carlo simulation method calculates the change in the value of a portfolio using a sample of randomly-generated price scenarios. In this approach, the user makes certain assumptions about market structures, the correlation between risk factors and the volatility of these factors. Unlike the historical simulation method, a Monte Carlo simulation requires the user to rely on his views and experience in evaluating risk.

All three methods include three basic parameters: a holding period, a confidence interval and a historical time horizon, over which the asset prices are observed. One way of evaluating the accuracy of a firm's VAR methodology is to compare the estimated (ex-ante) VAR number produced by its internal model with its actual (ex-post) profit and losses. A VAR number can be calculated for individual positions and for whole portfolios. If a firm has only one position, the VAR number represents the potential loss of that instrument, for a specified time horizon and confidence interval. Once it has two instruments, it will have two VAR numbers. To arrive at one number for both positions, it is necessary to evaluate whether and to what extent the positions offset or reinforce each other when the market moves.

These tendencies can be captured by the statistical measure of correlation that calculates the degree to which changes in two variables are related. It is normally expressed as a coefficient between plus or minus one. A +1 correlation means that the variables move in the same direction to the same degree while a -1 means that they move in opposite directions to the same degree. The statistical measure also depends on whether past correlation assumptions are valid for the future. Although in theory correlations should be stable, in reality they are not. They are at their most unstable level when markets are under stress. In short, correlations have a tendency to break down when they are the most needed.

A firm can use correlation offsets within a risk (asset) class, but not between risk classes. Similarly, banks can have capital relief for offsetting positions in a risk class, but not between classes. The VAR numbers for the various risk classes—interest rates, equities, currencies and commodities—must be added up to form the basis of a market risk capital calculation. The Bank for International Settlement (BIS) wants banks to have market risk capital to support their positions in a doomsday situation.

GREATER OPPORTUNITIES FOR DIVERSIFICATION

One means of mitigating risk is through the process of portfolio diversification. Diversification simultaneously pools and subdivides risks. Diversifiable risk is also referred to as unsystematic risk or idiosyncratic risk. It is the portion of the total risk of an asset that is not captured by its beta. Unsystematic risk is the risk unique to a particular asset. Since investors can eliminate unsystematic risk from their portfolios by diversifying, they are not rewarded for taking this risk.

One of the most compelling reasons for investing abroad is diversification. The passage of ERISA (Employment Retirement Security Act of 1972) further reinforced the notion of diversification. International real estate investment portfolios revolve around how much investors can gain from international diversification and the effects of fluctuating exchange rates. Returns on real estate are much less correlated across countries than within a country, because of differing economic, political, institutional, and psychological factors.

There is a large amount of home bias in real estate portfolio holdings. The reasons for this bias include the belief that domestic securities provide investors with a hedge against domestic inflation, and a conception of formal and informal barriers against investing in real estate overseas, extra taxes, and transaction and information costs. Further, investors are more willing to invest in the United States than in less familiar countries.

A real estate portfolio consisting of different assets is not always less risky than one consisting of a single asset. A portfolio needs to comprise the kind of assets that will provide desired diversification. Once properly diversified, a portfolio is less exposed to risk, but consequently also closer to average rather than maximum returns. This trade-off between risk and return is known as the risk-return frontier. Its shape is curvilinear with diminishing returns matched by an increasing level of risk. Since there are numerous market inefficiencies in real estate, only a few properties are available for sale at any given time. Consequently, an investment portfolio should consist not only of real estate, but also of common stock and other marketable securities.

Portfolios can be constructed in such a way that the overall risk of the portfolio is less than the weighted average of the standard deviation of the individual assets. Balance sheets have never really captured all the financial risks a firm faces. The function of balance sheets is to account for the historical performance of the firm. Credit and interest rate risks in a loan portfolio cannot be quantified without further information on maturities, counterparties, and the proportion of secured versus unsecured lending.

IDENTIFYING, DEFINING, MEASURING, ANALYZING, AND FORECASTING RISKS

Systematic risk is undiversifiable risk, market risk, or beta risk. Systematic risk cannot be avoided by diversifying among securities. Because of this, investors demand and, over the long run receive, compensation for bearing such risk in the form of an excess return. Market risk deals with the level and timing of absorption and the prices or rental rates at which this absorption takes place.

Political Risk—Country risk analysis involves an examination of a country's economic outlook and the stability of its government, as well as such factors as corruption, the crime rate, and the possibil-

ity of expropriation. In addition to these risks, real estate is also subject to numerous legislative and regulatory risks, such as changes in tax laws, rent control, zoning, and other government-imposed restrictions.

There is no unanimity yet on what constitutes political risk in a given country and how to measure it. Measures of political stability may include the frequency of changes of government, the level of violence, the number of armed insurrections, conflicts with other states, and so on. The basic function of such stability indicators is to determine how long the current regime will be in power and whether the regime will be willing and able to enforce its foreign investment guarantees. Most companies believe that greater political stability means a safer investment environment. From Canada to the Czech Republic, from India to Ireland, from South Africa to the former Soviet Union, and to Zimbabwe, which hosts the most prominent ethnic land disputes, political movements centered on ethnicity, national identity, and religion are reemerging to contest some of the most fundamental premises of the modern national state.

Companies differ in their susceptibilities to political risk depending on their industry, size, composition of ownership, level of technology, and degree of vertical integration. For example, expropriation or creeping expropriation is more likely to occur in the extractive utility and financial sectors of an economy than in the manufacturing sectors. Because political risk has a different impact on each firm, it is doubtful that any index of generalized political risk will be of much value to a company selected at random. The specific operating and financial characteristics of a company will largely determine its susceptibility to political risk and the effects of that risk on the value of its foreign investment.

In the large majority of countries, expropriation appears to be used as a fairly selective policy instrument. Rarely do governments, even revolutionary ones, expropriate foreign investment indiscriminately. In general, the greater the perceived benefits to the host economy and the more expensive its replacement by a purely local operation, the smaller the risk of expropriation.

One good indicator of the degree of political risk is the seriousness of capital flight. Capital flight refers to the export of savings by a nation's citizens, who doubt the safety of their capital. Capital outflows can be inferred by using balance of payment figures. These estimates suggest that capital flight represents an enormous outflow of funds from developing countries. This phenomenon occurs for several reasons relating to inappropriate economic policies, which include government regulations, controls, and taxes that lower the return on domestic investments.

Business Risks—Business risks involve changes in occupancy rates, the level of new construction, and zoning and permit regulations, as well as additions to the competitive supply. Other risks include labor problems and moratoria on various types of utilities, for example gas, sewers, water, and electricity.

Differences among customers and building practices may result in losses due to construction delays, the failure to obtain necessary permits, and the behavior of labor and supervisory personnel, which may be unacceptable to American investors and other stakeholders. Business people have to make subjective estimates. Economists refer to this situation as an incomplete market—one in which not all scenario payoffs are replicated.

Risks from Unsound Monetary and Fiscal Policies—Fiscal irresponsibility is a sign that a country is likely to be politically risky. The government deficit as a percentage of gross national product is a risk indicator. The higher this figure, the more the government is promising to its citizens relative to the resources it extracts in payment. The greater the deficit, the higher the possibility that the government will not be able to keep all its promises without resorting to expropriations of property.

Domestic policies play a critical role in determining how effectively a nation deals with external shocks. Asian nations, for example, successfully coped with falling commodity prices, increasing real interest rates, and rising exchange rates, because their policies promoted relatively low inflation rates and small current-account deficits.

The opposite was true for Latin America, where most countries believed that growth is best promoted by development strategies characterized by extensive state ownership and control. On the one

hand, many of these countries took over failing private businesses, nationalized the banks, protected domestic companies against imports, ran up large foreign debts, and heavily regulated the private sector. On the other hand, the “East Asian Tigers” (Hong Kong, South Korea, Taiwan, and Singapore) demonstrated their ability to imitate and innovate in the international marketplace.

The lack of foreign competition has contributed to long-term inefficiency among Latin American manufacturers. Latin American producers were content with the exploitation of domestic markets, charging prices typically several times the international rate for their goods. At the same time, state expenditures on massive capital projects diverted resources from the private sector and exports. Much of this investment funded inefficient state enterprises, resulting in wasted resources and large debts. The decline in commodity prices and the simultaneous rise in real interest rates should have led to reduced domestic consumption.

Fearing that spending cuts would threaten social stability, Latin American governments delayed cutting back on projects and social expenditures. Borrowing overseas filled the gap between consumption and production, enabling them to temporarily enjoy artificially high standards of living. Latin American governments also tried to stimulate their economies by increasing state spending through high rates of monetary expansion. This response exacerbated their difficulties with high rates of inflation, combined with fixed exchange rates, boosting the real exchange rate and resulting in higher imports and lower exports.

The overvalued exchange rates, interest rate controls, and political uncertainties triggered massive capital flight from the region. The result was considerable balance of payment deficits that necessitated more foreign borrowing and higher debt service requirements. The amount of unproductive spending in the economy is an indicator of potential political risk. To the extent that capital from abroad is used to subsidize consumption or is wasted on showcase projects, the government will have less wealth to draw on to repay the nation’s foreign debts and is more likely to resort to exchange controls and higher taxes.

Risks from Changes in the Country’s Economic Base—The resource base of a country consists of its natural, human and financial resources. Other

things being equal, a nation with substantial natural resources, such as oil or copper, is a better economic risk than one without those resources. However, nations such as South Korea or Taiwan turn out to be better risks than resource-rich Argentina or Brazil. Reasons for this include the quality of human resources and the degree to which these resources are put to their most efficient use.

The world economy still needs to make an enormous number of manufactured products. Each year, these products have to be made in greater variety with higher sophistication to meet increasingly stringent industrial and consumer demand. And yet, each year, they must cost less. Of the 47 largest manufacturing businesses in the United States, 19 specialize in chemicals, biotechnology and pharmaceuticals. If a country is serious about providing high-income employment, it needs to make sure it has a high concentration of knowledge-based and capital-intensive industries.

Manufacturing contributes some \$6 trillion a year to the world gross domestic product of over \$30 trillion. Moreover, it employs an estimated 350 million people and in most developed countries, it accounts for between a fifth and a quarter of the gross domestic product. That is down from 35% to 40% half a century ago.

A nation with highly skilled and productive workers, a large pool of scientists and engineers, and ample management talent has many of the essential ingredients to foster steady growth and development. The next decade is likely to be the era of the “sliver” company—manufacturing businesses that focus on a narrow set of products sold worldwide. Among the factors helping the evolution of such businesses are reductions in trade barriers, ease of international travel, and the role of the Internet in allowing small companies to produce and distribute their products worldwide.

Risks from Minimal Gains in Productivity—The United States has effectively regained its long-term productivity growth rate. During the first half of the 20th century—one of the most innovative periods in history—as well as in the 1990s, productivity averaged about 2% annually. The biggest productivity gainers are the computer and semiconductor industries. More broadly, non-financial corporations have turned in average productivity

gains of 2.7% a year, faster than the pace of the 1960s.

Productivity in the service sector has been basically flat. Service firms have not faced the same global competition as manufacturing companies and have had a ready supply of relatively cheap labor. This disparity in productivity is particularly serious because the service sector accounts for 75% of output. Policies that range from encouraging higher educational standards to supporting a few industry research consortia, help to achieve gains in productivity. Productivity growth is the single most important factor affecting American quality of life.

Risks Associated with the Localized Nature of Real Estate—Real estate is a local business because of the immovability of land and buildings. Investors take the risk that international, national, regional, state and local conditions will change. Two of the risks related to the localized nature of real estate are local area risks and site-specific risks.

Economic feasibility studies conducted for potential development projects focus on risks inherent in specific sites. Area-wide economic analyses address how risks relate to international, national, regional and metropolitan-area developments. They require a thorough understanding of the project's metropolitan area, because it is large enough to provide an overview of alternative market locations.

An understanding of risks inherent in the local area requires knowledge about its economic base. Some real estate analysts look at population, while others look at income or income per capita, others focus on retail sales, and still others use all of these variables. They then measure demand for various types of goods and services and prepare sensitivity analyses to determine the derived real estate demand.

Demographic Risks—The growth of the United States' population to 350 million people within a generation will have profound economic and real estate implications. This increase of 74.7 million people between 2000 and 2025 represents an annual rate of growth of 0.8%, a slight decline from the previous 30 years, which averaged 0.85% growth.

Projections of increases in the United States' population are a function of natural gains—births over deaths—and immigration. The population base is now so large that even a small percentage increase yields a very large number. During the 1940 to 1970 period, the population increased at the higher average annual compound rate of 1.2%. Yet, because the base was so much smaller, it resulted in a gain of only 71.1 million people. In certain periods, one of these two factors dominates. After World War II, the increase in long delayed births gave rise to the Baby Boomers, by far the single most important factor in the population growth.

The United States will remain an attractive destination for immigrants from around the world. Economic opportunities, political freedom, and a tradition of acceptance and integration of foreigners will continue to be powerful draws. Immigrant professional and technical workers will feel strong incentives to come to the United States, like relatively high salaries and opportunities to further develop their skills in an environment free of political and other restraints.

There will be significant opportunities for doctors, nurses, computer software technicians, electronic engineers, and scientists with experience in genetics. These opportunities will call workers and entrepreneurs from China, the Philippines, Russia, South Korea, India, Pakistan, and other parts of the world. On balance, immigration produces economic benefits for the receiving country. Immigrants are more economically active than the native population. They also tend to be paid less than natives with similar skills.

Risks from Different Values and Lifestyles—The pervasive trend in the past 500 years has been to separate church and state. In some parts of the world, powerful movements are insisting on a return to God-centered governments. Fundamental religious movements have entered the political arena. They are challenging the principle that government and other civic institutions should be predominantly secular and religion should be confined to the private lives of individuals and groups.

These movements are reacting against the secular nature of modern public culture and traditional values, although it is true that in many countries a close link between religion and government authorities exists. Egalitarian ideologies tend to

downplay private success, while justifying public privilege and the pervasiveness of the state. This distorts the reward pattern and makes it easier to get rich by politics than by industry, by connection rather than by performance. One consequence is to make dealings between states and groups more volatile. Political violence, whether endemic to the system or occurring mainly at the change of a regime, has been measured worldwide through analyzing strikes, riots, and terrorist incidents. The implications of the resurgence of national, ethnic, and religious passions are profound.

The idea that diverse and even historically hostile people could readily be assimilated under larger political umbrellas in the name of modernization and progress seems to have failed. Similarly, the concept of the "melting pot" has become discredited. The latest idea, that of a "salad bowl" requiring a "tossing up" rather than a "melting" of backgrounds, remains to be tested. There is turmoil in the former Soviet Union and parts of China. These problems threaten to blow apart the last remnants of an imperial age that began more than 500 years ago. Stretching from the Gulf of Finland to the mountains of Tibet and beyond, the sheer scale of the potential instability is taxing the world's capacity to respond. Ethnic unrest is spilling into neighboring countries, old border disputes are re-igniting, and civil wars are erupting within two of the world's largest nuclear powers.

Generally, American investors are most interested in the duration of governments, orderly transitions between regimes, and the stability of economic policies pertaining to matters such as property rights and foreign investment regulations and taxation. At the same time as many states and societies are fragmenting over religion, ethnicity, and national culture, their people nourish hopes of achieving economic progress by allying themselves with one of the new trade blocks now taking shape. The challenge for business is to create profitable opportunities in a world that is simultaneous globalizing and localizing.

Bureaucratic behavior has not been subject to extensive quantitative analysis, but bureaucrats do interpret their roles in government very differently from nation to nation. The international real estate investment process requires extensive contact with bureaucratic elites, and, of course, governments are prime users of space for the most common international investment of all: office buildings. In

certain European nations, for instance, bureaucrats view themselves as detached technicians and not as advocates for the positions they hold. Yet, these groups can be extremely powerful and can make important decisions about issues concerning urban planning, construction, government location, and even currency.

Risks from Changes in Income Growth and Distribution—Nationwide, from the late 1970s to the late 1990s, the average real income of the lowest-income families fell by more than 6% in real terms, while the average real income of middle-income families grew by about 5%. By contrast, the average real income of the highest-income families increased by more than 30%.

In the late 1990s, the average annual income of families in the top 20% of the income distribution was \$137,500 for the United States as a whole. This is more than 10 times that of the poorest 20% of families, which had an average income of \$13,000. In New York State, the highest-earning 5% of families gained nearly \$108,000 per family over the past two decades, while the lowest-earning 20% of families lost \$2,900.

Most Americans feel as if the New Economy's good-and-plenty train is passing them by. Real wages are barely budging and only 21% of Americans have stock market assets outside retirement funds. Growth in real hourly compensation has dropped from a 4.3% annual rate in the third quarter of 1998 to 2.3% in 1999. Annual raises in 1999 was estimated at 4.2%, down by 0.2% from 1990. The most striking development in the New Economy for many has been the end of the 40-hour week. Americans now log more hours on the job than workers in other industrialized nations.

The share of people working more than 49 hours a week rose significantly in the late 1980s and early 1990s across all occupations, according to the Bureau of Labor Statistics. Leading the trend and posting the longest hours were the highest-paid workers, managers and professionals, with as many as 29.5% logging marathon work weeks in the late 1980s and early 1990s, compared with about 24% in the early 1980s.

Income distribution is another source of frustration. While executives at Amazon.com in Seattle watched their paper-wealth mushroom, optionless customer-service representatives complained

of toiling away for \$10 an hour in cyber-sweatshops. The Center for Budget and Policy Priorities and the Economic Policy Institute recently listed nine states—led by New York—in which the richest 20% of households now earn at least 11 times the income of the poorest 20%. This points to a much sharper income disparity between the top and the bottom than existed two decades ago.

Liquidity Risks—Liquidity risk reflects the amount of time required to liquidate an investment. Real estate has a relatively high degree of liquidity risk. Even normally liquid markets can become illiquid when they experience extraordinary events, such as the break-up of the Exchange Rate Mechanism in September 1992, the equity market crash of October 1987 or the bond market crash of 1994.

The relatively large size of a real estate investment, the lack of homogeneity among properties, the large number of forces that affect the income stream, the variety of ownership alternatives, and the tax issues related to ownership, as well as high transaction costs, all act to keep liquidity at low level. However, the creation of secondary markets for real estate debt and equity has improved liquidity. Other factors providing greater liquidity include the broader securitization and institutionalization of the real estate markets.

Inflation Risks—Inflation risk demands a higher rate of return than an investment that is little affected by price increases. Historically, real estate has had a relatively small inflation risk, because the value of the land and buildings increases with reproduction costs. However, unexpected inflation can reduce an investor's rate of return, if the income from the investment does not increase as rapidly as the associated costs, including the cost of debt.

An increasing number of economists believe that eliminating inflation is not a priority, because the costs of living with inflation are not high relative to the costs of reducing it. They believe that, to a considerable extent, inflation is "neutral." The factors that hurt the economy are not higher prices but the acceleration in prices and increases in their volatility. These tend to distort decisions and reduce efficiency.

In countries where inflation is high and domestic inflation hedging is difficult or impossible,

investors may hedge by shifting their savings to foreign currencies deemed less likely to depreciate. They may also make the shift when they or their governments expect that a devaluation of an overvalued currency will hold down domestic interest rates artificially. In an attempt to control inflation, Latin American governments imposed price and interest rate controls. These controls led to further capital flight and price rigidity. Distorted prices gave the wrong signals to residents, sending consumption soaring and production plummeting.

Management Risks—Most real estate investments require management to keep the space leased and maintained, in order to preserve the value of the investment. Another key issue in management risk is "moral hazard." Some managers are tempted to place their own interests ahead of those of the company or the investor.

Alternatively, local management may assume more risks than the company and/or the investors are prepared to take. A powerful conflict can occur if the local management has different risk aversions and opportunity costs than the home company and investors. There is an increasing demand for better intra-company communication and assurances that the home company management directions are carried out. At the very least, the local management needs to be aware of the need to retain all or part of the original investment, keep pace with inflation, and avoid any actions that are in conflict with local laws and regulations.

Interest Rate Risks—Real estate tends to be highly leveraged and thus the rate of return earned by equity investors can be affected by changes in interest rates. Furthermore, yield rates required by investors for real estate tend to move with the overall level of interest rates in the economy. The use of leverage in real estate transactions magnifies the risk. The investor essentially makes a bet on future land appreciation and development profits. Whether the use of financial leverage enhances or diminishes an investor's return on equity is determined by the interplay of the asset's unleveraged return and the effective cost of debt capital.

Changing inflation or deflation scenarios alter the level of real inflation-adjusted interest rates. As the inflation rate rises, the real cost of indebtedness drops, while as deflation increases, the real cost of indebtedness increases. These events in turn enhance the value of the properties and decrease

the yield to the leveraged equity position. However, it is important to recognize that the cost of miscalculating leverage, or contracting a fixed rate of interest in a reduced-inflation environment, is greater than the benefit of correctly using leverage, or contracting a fixed rate of interest in a heightened-inflation environment.

Risks from Insufficient Capital Accumulation—The national savings rate is the sum of net domestic investment (in the capital stock) and net foreign investment (increases in the net claims of the nation on foreigners). Since the early 1980s, the United States has stopped investing abroad and has started selling huge quantities of its own assets to foreigners.

Recently, the United States has been saving 4% to 5% of its income, while other industrial countries have been saving an average of 10%. The ratio of domestic and foreign savings to GDP has declined from around 18% at the beginning of the 1980s to less than 10%. The main consequence of this decline, brought about by the Federal budget deficit and increased household spending, has been a growing dependence on foreign capital to finance American investment.

Currency Risks—A change in the value of the domestic currency relative to currencies of countries where a company has real estate investments involves transaction, translation, and economic risks. The equilibrium exchange rate between two currencies is theoretically equal to the ratio of the price levels between the two countries. The level of the exchange rate reflects the general price levels in the home nation and in the foreign nation. According to the law of one price, a given commodity should have the same price (so that the purchasing power of the two currencies is at parity) in both countries.

Purchasing power parity theory can be very misleading in part because it suggests that the exchange rate is completely independent of changes in the capital account. Another problem is that it does not take into consideration the existence of many non-traded goods and services, such as cement and brick, as well as services rendered by mechanics, hair stylists, family doctors, and many others.

International trade tends to equalize the prices of traded goods and services among nations, but not

the prices of non-traded goods and services. There are also problems with the relative purchasing power parity theory, because of significant structural changes in the economy of various countries. Trade deficits have a cost: a gradual mortgaging of future U.S. income to foreigners. Moreover, international trade theory indicates that consistently large trade deficits, which are not offset by increased domestic savings or foreign investments, lead to downward pressures on domestic currency and a lack of confidence in the economy.

As the United States becomes a massive net debtor, it will be exposed to serious financial cycles all over the world. The other negative impact of the trade deficit is political. The trade deficit and the growing foreign stake in the United States tend to feed crude forms of economic nationalism at home, increasing the risks of a trade war.

Environmental Risks—The value of real estate is often affected by changes in the environment, some potentially hazardous. An analysis and forecast of economic and business cycles, as well as monetary, inflation, and interest rate conditions, can often assist an investor in mitigating these risks. In the United States, the National Environmental Policy Act of 1969 is the major “umbrella” law requiring Federal agencies to carefully assess the potential impacts of proposed real estate and infrastructure projects.

In both the United States and abroad, the process requires the analysis and use of a systematic interdisciplinary approach to determine the environmental impact of every proposed project. Impacts can be physical, visual, auditory, social, and/or economic. They include direct and indirect effects, as well as reasonably foreseeable cumulative effects. The first step in the process is to determine whether the project will have “No Effect,” “No Adverse Effect,” or an “Adverse Effect” on the environment.

THE MEASUREMENT OF RISK

Measuring risk factors is a tradeoff between building a matrix that can capture all the risks inherent in a portfolio and acquiring data that is manageable and quick to use. In general, the number of risk factors in each risk class, and the level of detail involved in defining each risk factor, should be greatest where the firm has a large and/or complex position. This is because the firm needs to know as

precisely as possible the market risks emanating from those positions.

Another consideration is the depth and liquidity of the markets underpinning each risk factor. For example, liquid markets with different types of securities of varying maturities will provide more comprehensive information on risk factor behavior than less liquid, more thinly traded markets. For interest rates, there will be a risk factor for every currency in which the firm has an interest-rate sensitive position. These factors must be calculated for various points on the government bond yield curve (to capture curve risk) as well as risk factors for non-government instruments such as swap rates (to capture spread risks).

For significant interest rate positions, the Bank for International Settlements (BIS) insists on a minimum of six maturity bands, each representing a separate risk factor. Equities, currencies, and commodities are less complicated and thus only require risk factors for every market in which the firm has a position. The resulting risk factor matrix is extensive and impossible to use without the aid of computers.

RISK MANAGEMENT THROUGH DERIVATIVES

Risk management is at the forefront of investors' minds. The evidence is clear that derivatives fulfill a fundamental economic function. Their use is being applied to an increasingly broad range of asset classes. Exchange risk management involves both the financing decision and the investment decision. Financial executives in multinational corporations face many factors that have no domestic counterparts. These factors include exchange and inflation risks, international differences in tax rates, multiple money markets—often with limited access, currency controls, and political risks, such as sudden and creeping expropriation.

If the derivatives industry did not exist, it would have to be invented. As is, the entire sector is booming. A notable feature of the market is a significant concentration among a small number of participating banks. This is one of the main differences between the current market volatility and the previous bout of turmoil. The credit derivatives market is an important part of users' ability to manage risk. Risk is taken on by the banks and then redistributed, for example through issuing bonds with attached warrants on particular companies to retail investors. JP Morgan is one of the

biggest forces in the global derivatives market. Others include the Bank of America, CitiGroup, Credit Suisse First Boston, Deutsche Bank, Goldman Sachs, Merrill Lynch, Morgan Stanley, and UBS Warburg.

A recent survey (2002) conducted by the International Swaps and Derivatives Association (ISDA) showed that the volume of outstanding interest rate and currency derivatives has reached \$82,700 billion, having increased by 20% in the first six months of 2002. Equity derivatives have reached \$2,300 billion, while interest rate swaps have become the most accepted instrument to hedge credit duration risk. An increasing number of actors in the market use interest rate swaps to customize their liability portfolio. For example, the Chicago Board of Trade recently launched five- and ten-year contracts.

Dealers and investors use swaps to adapt to changes in the economic and financial environment. In early September 2002, when the economic outlook had so deteriorated that no rise in interest rates was in sight, activity in the swaps market peaked. European pension and insurance funds, which need to extend debt maturities to match assets with liabilities, are using the interest rate swaps market.

The swaps market can provide protection against the falling equity market and declining interest rates, both of which have occurred since the bursting of the dotcom bubble. Government debt management agencies are employing interest swaps to reduce maturities and cut borrowing costs. Derivatives are being used far more frequently than in the past. This marks a fundamental change in the approach of European institutions. Insurance companies, in particular, are testing new means of risk management.

The fastest growing segment of the market is credit derivatives. While the market did not exist in the mid-1990s, the volume of outstanding contracts comprised \$1,600 billion in mid-2002. Moreover, the British Bankers' Association believes that they will reach \$1,952 billion by the end of 2002 and \$4,800 billion by the end of 2004. This growth reflects investors' reach to the market that is marked by volatile share prices, profound uncertainty about fundamental economic and corporate trends, and acute risk aversion.

ESTIMATES OF RISK-WEIGHTED RATES OF RETURN

The asset allocation policy of an institutional investor should be guided by the basic philosophy that capital market behavior is ultimately a function of underlying economic fundamentals. The real "riskless" rate of return on an investment is the marginal rate at which people are willing to forgo present consumption in favor of uncertain future consumption. This rate depends on both the time preference for consumption and the marginal efficiency of investment.

Three concepts of financial economics have proven to be of particular importance in developing a theoretical foundation for international corporate finance:

1. **Arbitrage:** Arbitrage pricing theory (APT) involves the simultaneous purchase and sale or lending and borrowing of two assets or two groups of equivalent assets in order to profit from a price disparity. Arbitrage in foreign exchange markets ensures that comparable foreign exchange rates vary minutely, if at all, among different markets.
2. **Market efficiency:** This means that market prices of capital assets, like efficient markets, reflect all available information. This hypothesis has profound implications for investor behavior. If markets are efficient, all attempts to outperform market indexes will fail.
3. **Capital asset pricing:** The capital asset pricing model (CAPM) and arbitrage pricing theory (APT) are the principal pricing theories. In 1952, Harry M. Markowitz demonstrated a method of portfolio construction that minimizes risk for each level of expected return, called the "efficient frontier."

CONCLUSIONS

Accurate and frequent valuations of derivative portfolios are essential in determining value at risk (VAR). VAR is the amount of money an institution could make or lose due to price changes in the underlying market.

The implications of VAR on proper risk management cannot be over emphasized. Marked-to-market valuation reflects true portfolio value, which in turn implies proper hedging techniques. More frequent marking-to-market practices produce more

up-to-date risk measurement information and therefore enable price risk management practices. Daily marking-to-market is essential for dealers.

The practice and methods of risk management in derivative portfolios are continually evolving. Risk measures such as VAR are replacing more rudimentary risk measures based on notional amounts, as more participants recognize the benefits of their accuracy.

The synthesizing of custom financial contracts and securities is for financial services what the assembly line production process is for the manufacturing sector. Options, futures, and other exchange-traded securities are the raw inputs applied to prescribed combinations over time, to create portfolios that hedge the various customer liabilities of financial intermediaries.

Other frequently-used indicators of political risks include inflation, balance-of-payment deficits or surpluses, and the growth rate of per capita GNP. These measures are thought to reveal whether the economy is in good shape or requires a quick fix, such as expropriation to increase government revenues or currency inconvertibility to improve the balance of payments. In general, the better a country's economic outlook, the less likely it is to face political and social turmoil.

More subjective measures of political risks are based on a general perception of each country's attitude toward private enterprise: whether private enterprise is actively welcomed or is considered a necessary evil to be eliminated as soon as possible. A country's attitude toward multinationals is particularly relevant and may differ from its views on local private ownership. In general, most countries probably view foreign direct investment in terms of a cost/benefit trade-off and are not either for or against it in principle. From an economic standpoint, political risk refers to uncertainty over property rights. If the government can expropriate either legal title to property or the stream of income it generates, then political risk exists.

Political risk also exists if property owners can be constrained in using their property. This definition of political risk encompasses government actions ranging from outright expropriation to a change in the tax law that alters the government's share of corporate income, to laws that change the rights of private companies to compete against state-owned

companies. Each action affects corporate cash flows and hence the value of the firm.

Risk is closely correlated to uncertainty. Although real estate investment risks can often be mitigated, they can never be entirely eliminated. Moreover, the process of mitigating risks is seldom cost-less. The essence of risk management lies in identifying the risk, analyzing it, and finding the means to economically reduce its impact:

- A structure of incentives that rewards risk-taking in productive ventures: People have clearly demonstrated that they respond rationally to incentives, when information and resources are made available to them,
- A legal structure that stimulates the development of free markets: The resulting price signals are most likely to contain data that are essential to making efficient use of a nation's resources,
- Minimal regulations and economic distortions: Complex regulations are costly to implement and waste management time and other resources,
- Clear incentives to save and invest: in general, when such incentives exist, when the economic rules of the game are straightforward and stable,

and when there is political stability, a nation's chances of developing are maximized,

- And an open economy: Not only does free trade increase competition and permit the realization of comparative advantage, it also constrains government policies and encourages them to support increases in living standards and rapid economic growth.

The most successful economies, such as South Korea and Taiwan, demonstrate the importance of aligning domestic incentives with world market conditions. Statism, the substitution of state-owned and state-guided enterprises for the private sector, on the other hand, has proven to be inefficient.

The essential element that distinguishes the true multinational corporation is its commitment to seeking out, undertaking, and integrating manufacturing, marketing, research and development, and financing opportunities on a global basis. A necessary complement to the integration of worldwide operations is flexibility, adaptability and swiftness. Speed has become one of the critical competitive weapons in the fight for global market share. The key maxim in real estate is no longer "Location, Location, Location," but "Timing, Timing, Timing."