Country Risk and Foreign Direct Investment

Duncan H. Meldrum

Country risk analysis (CRA) attempts to identify imbalances that increase the risk of a shortfall in the expected return of a cross-border investment. This paper describes the general process used to create risk measures and discusses some of the weaknesses of this process. It then examines the degree of association of six measures and analyzes the ability of these measures to predict returns for a manufacturing investment. The paper concludes that company analysts may improve the performance of risk measures available from commercial services by adjusting risk measurement to fit the company's specific type of foreign direct investment.

Introduction

All business transactions involve some degree of risk. When business transactions occur across international borders, they carry additional risks not present in domestic transactions. These additional risks, called country risks, typically include risks arising from a variety of national differences in economic structures, policies, socio-political institutions, geography, and currencies. Country risk analysis (CRA) attempts to identify the potential for these risks to decrease the expected return of a cross-border investment.

"Risk" implies an analyst can identify a well-defined event drawn from a large sample of observations. A large sample contains enough observations to develop a statistical function amenable to probability analysis. An event that lacks these requirements moves toward uncertainty on the continuum between pure risk and pure uncertainty. For example, the probability of death from an auto accident classifies as a risk; the probability of death from a nuclear meltdown falls into uncertainty given a lack of nuclear meltdown observations. Many of the individual events investigated by country risk analysis fall closer to uncertainties than well-defined statistical risks. This forces analysts to construct risk measures from theoretical or judgmental, rather than probabilistic, foundations.

Uncertainty makes CRA more similar to a soft art than a hard science. Analysts deal with the soft nature of CRA in different ways that can result in widely varying views of the risk level of a country. For this reason, users of commercially developed risk measures must understand their construction methods if they wish to analyze a company investment risk appropriately. As demonstrated in the sections below, company analysts should be able to improve upon outside measures by adapting risk systems to their specific company investments.

Theory vs. Practice

Country risk analysis rests on the fundamental premise that growing imbalances in economic, social, or political factors increase the risk of a shortfall in the expected return on an investment. Imbalances in a specific risk factor map to one or more risk categories. Mapping all the factors at the appropriate level of influence creates an overall assessment of investment risk. The mapping structure differs for each type of investment, so an imbalance in a given factor produces different risks for different investments.

This fundamental premise provides a simple theoretical underpinning to CRA. Unfortunately, no comprehensive country risk theory exists to guide the mapping process. Most services base their risk measures on a mix of economic or socio-political theory and their analysts' experiences. They usually combine a variety of different factors representing actual and potential imbalances into a comprehensive risk assessment that applies to a broad investment category. Versions of this eclectic approach appear throughout CRA literature, most of which emphasizes a number of common points, then slips into a detailed discussion of ways the authors enumerate risk for various investments. The best authors emphasize the necessity to adapt their analyses for a specific investment decision given the judgmental nature of their methods.

Country Risk Categories and Measurements

Analysts have tended to separate country risk into the six main categories of risk shown below. Many of these categories overlap each other, given the interrelationship of the domestic economy with the political system and with the international community. Even though many risk analysts may not agree completely with this list, these six concepts tend to show up in risk ratings from most services.

I. Economic Risk
II. Transfer Risk
III. Exchange Rate Risk
IV. Location or Neighborhood Risk
V. Sovereign Risk
VI. Political Risk

Economic Risk: a significant change in the economic structure or growth rate that produces a major change in the expected return of an investment. Risk arises from the potential for detrimental changes in fundamental economic policy goals (fiscal, monetary, international, or wealth distribution or creation) or a significant change in a country's comparative advantage (e.g., resource depletion, industry decline, demographic shift). Economic risk often overlaps with political risk in some measurement systems since both deal with policy.

Economic Risk Measures: Analysts examine traditional measures of fiscal and monetary policy. For longer term investments, they also examine growth theory factors. For fiscal policy, analysts examine such factors as the size and detail of government expenditures (*investment vs. spending as a percent of GDP*), tax policy *(types and rates of taxation, fairness, effectiveness vs. popular avoidance*), and the government's debt situation (*government deficit/GDP, total government debt/GDP, debt financing sources*). Analysts examine the impact of monetary policy and financial maturity on economic growth (*inflation, money supply growth, real and nominal interest rates, and financial sector/GDP*). For longer term investments, analysts focus on long-run growth factors (*growth in productive plant and equipment, private and foreign direct investment/GDP, labor force growth, unemployment, productivity*), the degree of openness of economy (*exports plus imports/GDP, FDI/total private investment*) and institutional factors that might affect wealth creation (*property rights, the degree of regulation, extent of any black market*).

Transfer Risk: the risk arising from a decision by a foreign government to restrict capital movements. Restrictions could make it difficult to repatriate profits, dividends, or capital. Since a government can change capital movement rules at any time, transfer risk applies to all types of investments. It usually is analyzed as a function of a country's ability to earn foreign currency, with the implication that difficulty earning foreign currency increases the probability that some form of capital controls can emerge. Quantifying the risk remains difficult because the decision to restrict capital may be a purely political response to another problem. For example, Malaysia's decision to impose capital controls and fix the exchange rate in the midst of the Asian currency crisis was a political solution to an exchange rate problem. Quantitative measures typically used to assess transfer risk provided little guidance to predict Malaysia's actions.

Transfer Risk Measures: Typical measures include the ratio of debt service payments to exports or to exports plus net foreign direct investment (*debt/interest service ratios*), the structure of foreign debt relative to income (various *debt/GDP ratios*), foreign currency reserves divided by various import categories (*import coverage*), and measures related to the current account status (*external financing gap, current account as a percent of GDP*). Trends in these quantitative measures reveal potential imbalances that could lead a country to restrict certain types of capital flows. For example, a growing current account deficit as a percent of GDP implies an ever-greater need for foreign exchange to cover that deficit. The risk of a transfer problem increases if no offsetting changes develop in the capital account.

Exchange Risk: an unexpected adverse movement in the exchange rate. Exchange risk includes an unexpected change in currency regime such as a change from a fixed to a floating exchange rate. Economic theory guides exchange rate risk analysis over longer periods of time (more than one to two years). Short-term pressures, while influenced by economic fundamentals, tend to be driven by currency trading momentum best assessed by currency traders. In the short run, risk for many currencies can be eliminated at an acceptable cost through various hedging mechanisms and futures arrangements. Currency hedging becomes impractical over the life of plant or similar direct investment, so exchange risk rises unless natural hedges (alignment of revenues and costs in the same currency) can be developed.

Exchange Rate Risk Measures: Many of the quantitative measures used to identify transfer risk also identify exchange rate risk since a sharp devaluation of the currency can reduce some of the imbalances that lead to increased transfer risk. A country's exchange rate policy may help isolate exchange risk. Managed floats, where the government attempts to control the currency in a narrow trading range, tend to possess higher risk than fixed or currency board systems. Floating exchange rate systems generally sustain the lowest risk of producing an unexpected adverse exchange movement. The degree of over- or under-valuation of a currency (*parity minus actual exchange rate, relative inflation or money supply growth rates, relative interest rates on similar risk instruments*) also can help isolate exchange rate risk.

Location or Neighborhood Risk: spillover effects caused by problems in a region, in a country's trading partner, or in countries with similar perceived characteristics. While similar

country characteristics may suggest susceptibility to contagion (Latin countries in the 1980s, the Asian contagion in 1997-1998), this category provides analysts with one of the more difficult risk assessment problems.

Location Risk Measures: Geographic position provides the simplest measure of location risk. Trading partners, international trading alliances (Mercosur, NAFTA, EU), size, borders, and distance from economically or politically important countries or regions can also help define location risk.

Sovereign Risk: a government becomes unwilling or unable to meet its loan obligations, or reneges on loans it guarantees. Sovereign risk can relate to transfer risk in that a government may run out of foreign exchange due to unfavorable developments in its balance of payments. It also relates to political risk in that a government may decide not to honor its commitments for political reasons. The CRA literature designates sovereign risk a separate category because a private lender faces a unique risk in dealing with a sovereign government. Should the government decide not to meet its obligations, the private lender realistically cannot sue the foreign government without its permission.

Sovereign Risk Measures: Analysts calculate ability to pay using transfer risk measures. Willingness to pay requires an assessment of the history of a government's repayment performance, an analysis of the potential costs to the borrowing government of debt repudiation, and a study of the potential for debt rescheduling by consortiums of private lenders or international institutions. Sovereign risk may be further complicated by the international setting. In a recent example, IMF guarantees to Brazil in late 1998 were designed to stop the spread of an international financial crisis. Had Brazil's imbalances developed before the Asian and Russian financial crises, Brazil probably would not have received the same level of support and sovereign risk would have been higher.

Political Risk: risk of a change in political institutions stemming from a change in government control, social fabric, or other non-economic factor. This category covers the potential for internal and external conflicts, expropriation risk and traditional political analysis. Risk assessment requires analysis of many factors, including the relationships of various groups in a

country, the decision-making process in the government, and the history of the country. Insurance exists for some political risks, obtainable from a number of government agencies and international organizations.

Political Risk Measures: Few quantitative measures exist to help assess political risk. Measurement approaches range from various classification methods (*type of political structure, range and diversity of ethnic structure, civil or external strife incidents*) to surveys or analyses by political experts. Most services tend to use country experts who grade or rank multiple socio-political factors and produce a written analysis to accompany their grades or scales. Company analysts may also develop political risk estimates for their business through discussions with local country agents or visits to other companies operating similar businesses in the country. In many risk systems, analysts reduce political risk to some type of index or relative measure. Unfortunately, little theoretical guidance exists to help quantify political risk, so many "systems" prove difficult to replicate over time as various socio-political events ascend or decline in importance in the view of the individual analyst.

Aggregate Risk Measures

Country risk analysis in the 1970s and 1980s tended to focus on the risk a private lender such as a bank incurred when it made a hard currency loan to a sovereign government outside its home country. Risks were segmented to identify potential shortfalls in either the foreign currency value of the investment (returns decline in the foreign currency) or in the investor's home currency (returns hold up in local currency, but decline when measured in the investor's own currency). Quantitative risk analysis generally focused on factors related to a country's ability to earn foreign currency to repay the debt. Qualitative analysis attempted to ascertain a country's willingness to repay the debt. This type of analysis tended to focus on the sovereign, transfer, and short-term exchange rate risk categories. With minor adjustments, this analytical approach also was used to assess risk in short-term investments in foreign private financial assets.

A multinational enterprise (MNE) that builds a plant in a foreign country faces somewhat different risks than a bank lending to a foreign government. The MNE must consider a longer time horizon and risks from a much broader spectrum of country characteristics. Some

categories pertinent to a plant investment contain a much higher degree of risk simply because the MNE remains exposed to risk for a much longer period of time.

Table I
RISK IMPACT BY INVESTMENT TYPE

Risk Category:	Direct Investment Private Sector	Short Term Financial Private Sector	Short Term Loan to Government	Long Term Loan to Government
Economic	High	Low	Low	Low to Moderate
Transfer	Moderate	High	High	Moderate
Exchange	High	None to High	None to High	High
Location	High	Moderate	Low	Moderate
Sovereign	Low	Low	High	High
Political	High	Low	Moderate	High

Table I gives the author's subjective view of the impact of the six risk categories on different types of investments. The investments are all assumed to be made in the foreign currency. The risk impacts would change somewhat if the investments were denominated in own currency (e.g., a dollar loan to a foreign government).

While all major categories potentially pose some degree of risk for each type of investment, the longer time horizon for a direct investment produces high impacts from a greater number of risk categories. Specifically, economic, political, and location risks become more problematic for a fixed investment lasting 20 or more years. Transfer risk, on the other hand, can pose less of a risk to a long term fixed investment since capital restrictions are unlikely to last for the entire period of the investment. Countries typically impose capital restrictions to help manage temporary foreign exchange shortages. MNEs usually can reinvest profits locally and wait out the restrictions without severe negative impacts on the return to the investment over the project's full life.

Companies can acquire country risk measures from a large number of sources.[1] The Handbook of Country and Political Risk Analysis (Coplin & O'Leary, eds. 1994) describes calculation methods and risk information available from ten services. Other risk information services, including Standard & Poor's DRI and The WEFA Group, also describe their risk construction methods in detail. While a comprehensive review of each measurement's construction is well

beyond the scope of this paper, a brief description of the development of a generic risk measure for a direct investment will give an understanding of the process most services use to create their risk measure.

Our generic risk analysis team begins by specifying the type of investment the system will measure, in this case a manufacturing plant. The team then decides the relative influence each of the six country risk categories exert on the plant's operation and output. Using Table I as a guide, the team devises an approach that gives the greatest weight to economic risk, with slightly lower weights assigned to exchange, location, and political risk. Since the plant's working life exceeds 20 years, the team gives transfer risk a low weight. It drops sovereign risk because the plant will be financed privately and sell its output into private markets.

Next, the team selects indicators and measurement methods for each risk category. It decides to use a common scaling system (risk factor scales of 1 to 5, lowest to highest) and develops a scheme to classify imbalances in each indicator. This scheme takes the form of a numeric scale for quantifiable factors (e.g., assign a rating of 3 to current account deficits greater than X% of GDP, a 4 to deficits greater than (X+2)%, etc.). For nonquantifiable indicators, the team relies on a judgmental assessment from its political expert who is tasked with scaling political risk factors (e.g., assign a rating of 3 for unstable political situation in a democracy, a 5 for a change to an autocratic government). The team creates a measure for each of the five risk categories by combining the individual scale values (e.g., current account deficit rating plus import coverage rating plus debt service rating equals transfer risk measure).

The team calculates its total country risk measure as a weighted index using the weighting scheme dictated by the relative importance of each risk category. By using the same weighting scheme to create measures for each country, team members can compare the relative risk their manufacturing plant faces in different countries.

The brief overview indicates some of the reasons risk measures for a country may differ from one source to another. Analysts assessing the same investment risk may use different indicators in their risk categories, weight them differently in their final measures, or classify individual factors as risky at different levels. For example, while almost every system uses the current account

deficit as a percent of GDP as an indicator, the level at which it begins to increase risk varies widely.

To demonstrate the variability of risk measures, the author examined risk measures from six sources for 38 countries.[2] The measures come from four risk services (S-I to S-IV), the S&P's long-term sovereign local currency debt rating, and the author's company-specific manufacturing risk measure. S-II and the author specifically measure risk for a manufacturing investment. S-I measures five-year ahead direct investment risk for all industries, S-III measures a composite investment risk, and S-IV measures economic risk. Five of the measures were released in the first half of 1996, S-II was released in the fourth quarter of 1996. Risk measures created in the first quarter of 1995 were also available from S-I, the author, and, for a 26 country subset, the S&P.

The calculation methods used by the services, described in either Coplin & O'Leary (1994) or provided to the author by the respective service, indicated ordinal scaling was the highest level of measurement appropriate for a six-way analysis. Countries were ranked 1 to 38, from lowest to highest risk, with ties receiving the average of the ranks. The measures were then analyzed using nonparametric methods appropriate for ordinal data (see Siegel (1956) for an excellent discussion of nonparametric statistics). Table II displays the results of the analysis.

Table II
1996 Investment/Economic Risk Measures
Kendall Coefficient of Concordance W = .73

Spearman Pair-wise Rank Correlation Coefficients
(Rankings for 38 Countries, Corrected for Ties)

Source:	S-I	S-II	S-III	S-IV	S&P
S-I	–				
S-II	.61	–			
S-III	.61	.80	–		
S-IV	.53	.43	.66	–	
S&P	.67	.82	.86	.59	–
Author	.56	.46	.65	.77	.60

All correlation coefficients significant at .01 level

The Kendall Coefficient of Concordance W measures the degree of association among all risk rankings. At W=.73, the coefficient is significant at the .001 level, so the six rankings as a group exhibit a high degree agreement in the ranking of investment risk. On the other hand, pair-wise

correlation coefficients range from a high of .86 to a low of .43, so this agreement is not exact. Some of the correlation differences may be attributed to different emphasis of risk categories. For example, S-IV and the author weigh economic factors heavily in their measures while S-II, S-III, and the S&P focus more on transfer and exchange risk categories. While all pairs possess statistically significant correlation coefficients, the average pair-wise correlation of .64 indicates a great deal of variability arising from the different measures of country risk.

In the smaller sample of 26 country risk measures prepared in early 1995, S-I and the author's measure had a low but statistically significant correlation coefficient of .44. Neither S-I nor the author's risk measure demonstrated a significant relationship with the S&P sovereign risk measure (.33 and .30 correlation, respectively). This smaller sample supported the general results of the larger sample.

Predictability and Returns

A firm making a plant investment overseas needs its risk analysis to identify economically detrimental developments, not necessarily relate closely to other risk measures. The relationship between risk measures from Table II and a measure of returns earned by U.S. manufacturing firms on their direct investments abroad provides one measure of effectiveness relevant for a manufacturing firm.

One would expect returns in any given year to be negatively correlated with forward-looking country risk. To see this, assume all countries had identical past risk outlooks, so investments were made with the expectation of earning identical returns in all countries. Then, in the current period, imbalances develop to increase risk in some countries, while in others conditions improve to lower risk. By design, the imbalances signaling higher future risk should suppress the current income received from past investments. Conversely, low risk measures imply a more favorable environment for current income.

As time passes, returns should gradually shift to align positively with the current period's risk measure because manufacturers earning low or negative returns in high-risk countries will abandon business, and new investments into high-risk countries will be made only if manufacturers can earn higher returns. Investments into low-risk countries will require lower

returns, gradually reducing the average return in low-risk countries. This dynamic will show up as a gradual shift from a negative risk-return relationship to a positive relationship between the current risk measure and future returns.

To test this assumption, annual manufacturing returns were developed from Bureau of Economic Analysis data for income and direct investment position abroad (*Survey of Current Business*, October 1998). The most recent data covers various sectors, including manufacturing, for the years 1994 to 1997. The investment position abroad consists of historical investments measured in current dollars. Income includes income net of local withholding taxes in a given year. While not a perfect measure of returns,[3] the ratio of income to investment gives a useful approximation of the annual profitability of U.S. manufacturing overseas investments.

Returns for the 38 countries were ranked 1 to 38 from low to high for 1996 and 1997. Table III displays nonparametric correlation coefficients between the two annual return rankings with the six risk measures from above. The table also includes the change in the correlation coefficient from 1996 to 1997.

Table III
1996 Risk Measure vs Manufacturing Returns
Spearman Rank Correlation - 38 Countries

	Returns for:		Change in
96 Risk Measure from:	1996	1997	Coefficient
S-I	-.05	-.03	+.02
S-II	.07	.12	+.05
S-III	.22	.27	+.05
S-IV	-.10	.10	+.20
S & P	.21	.11	-.10
Author	-.08	.14	+.22

* Significant @ .01 level

The casual observer immediately notes there are no high correlation coefficients, and no statistically significant correlation between risk and return for any of the measures. Risk-return correlation in 1996 was negative for only S-I, S-IV, and the author. Signs changed from negative to positive between 1996 and 1997 for S-IV's and the author's measures, and became more positive for S-II and S-III. The S&P correlation weakened, perhaps reflecting a difference between sovereign and manufacturing investment risk. While there may be a faint indication that

S-IV and the author's risk-return rankings behave as expected, the results certainly are not conclusive on the ordinal ranking data.

Figure 1

To compare all six risk measures from Table II, returns for manufacturing were ranked. Ranking the return measures ignores ratio information in the data, and forces countries with very similar returns into an order that may not be accurate given the weaknesses in the measurement of the underlying return data. Figure 1 displays the distribution of 1996 manufacturing returns by country. Ranking uncertainty potentially exists among countries showing returns of around 10%, 12% and 15%.

The author's risk measure attempts to overcome some of the limitations of traditional risk service measures with a fuzzy logic approach to risk measurement.[4] Risk measurement with this fuzzy logic system produces an interval scale that enables some parametric analysis. When valid, parametric analysis takes advantage of the greater information embedded in interval data, specifically, the closeness of some of the country returns. Table IV provides a parametric risk-return analysis of S-I, S&P, and the author's measures for the S&P 26 country subset.

Table IV

1995 Risk Measure vs Manufacturing Returns

Correlation Coefficients - 26 Countries

	Mfg. Returns in Year:			
JAN 95 Risk:	1994	1995	1996	1997
S-I	-.05	.05	.06	.06
S&P	.28	.11	.09	.03
Author	-.45*	-.51*	-.43*	-.34*

* Statistically Significant at 0.1 .01 level

The insignificant S&P results are not surprising given a high number of identical risk measures among the countries in this sample (18 developed countries in the sample had AAA ratings). S-I also had a high concentration of equivalent risk ratings among developed countries. The author's measure, on the other hand, produces results consistent with expectations. Significant negative risk-return correlation in the current years (1994,1995) moves in the direction of a positive current risk-future return relationship (declining negative correlation with 1996 and 1997 returns).

Adding risk measures for 14 more developing countries rated by both the author and S-I dilutes the strength of the correlation results a little (Table V). The author's measures, however, continue to show the expected sign and movement from negative correlation to positive correlation.

Table V
1995 Risk Measure vs Manufacturing Returns
Correlation Coefficients - 40 Countries

	Mfg. Returns in Year:			
JAN 95 Risk	1994	1995	1996	1997
S-I	.07	.22	.09	.15
Author	-.33*	-.22	-.12	.01

*Statistically significant at .05 level

Figure 2 demonstrates graphically the relationship between the author's 1995 January risk measures and manufacturing returns from 1994 to 1997. The patterns in the figures show the expected shift in the relationship as demonstrated by the declining slope of the trendlines through the years. Obviously, high dispersion exists in relationship, but Figure 2 demonstrates that the risk measure specifically designed to capture the author's manufacturing company investments behaves as expected. Its superior performance to any other measure in this study also supports

the value of a company-specific risk measure to improve the company's understanding of the investment environment, rather than rely solely on outside measures.

Concluding Remarks

Risk measures examined here displayed general agreement concerning the relative risk in 38 countries. Risk measures from external services, however, performed poorly as predictors of one- to two-year ahead manufacturing foreign investment returns. Some of that inability may be caused by differences in the specific investment for which the risk measures were created, some may be caused by weaknesses in the risk measurement system. The best performing measure, created by the author, was specifically designed to measure longer-term direct investment risk for a manufacturing firm. The better results of this measure give some indication that an analyst should be able to add value by adapting external information to a company's specific investment type.

Companies investing overseas should consider country risk in a systematic approach consistent with the types of investments they are making. If they use an external service, measures from that service must be tested for relevance. Ideally, the measures should be recombined in a system that better relates to a company's specific investment needs. Some external systems invite such recombination by making all of their individual risk measures available. In any case, a company needs to examine the relationship between risk and its businesses to make sure risk measures actually help the company improve its business decisions.

Finally, the weakness of the results also reflects the weakness of the state of country risk analysis. The field would benefit greatly from additional research into the theoretical and quantitative relationships between risk and the returns earned in cross-border investments.

FIGURE 2
Author's 1995 Risk Measures VS Manufacturing Returns
(1994 to 1997)

Figure 2a.

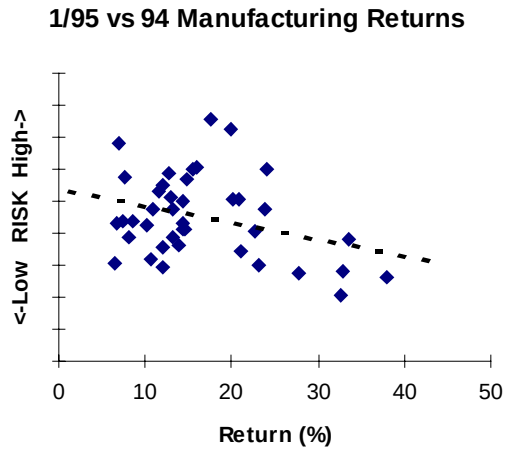
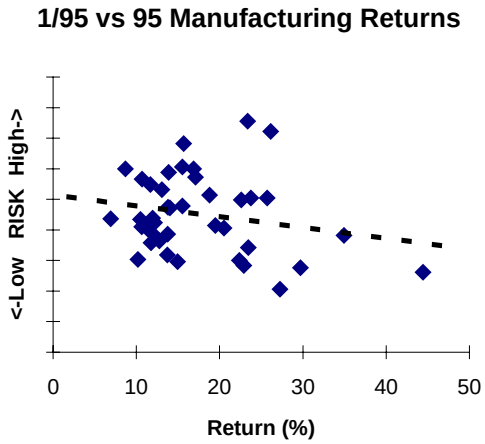


Figure 2b.



.

Figure 2c.

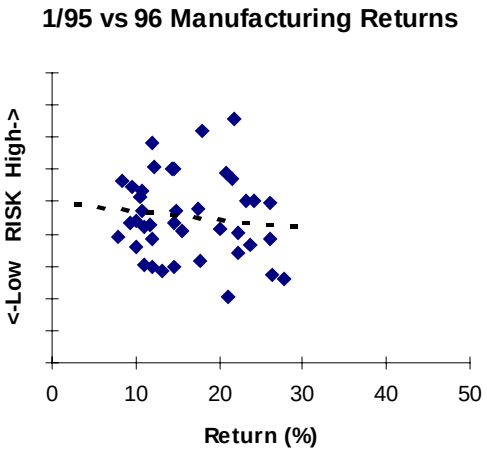
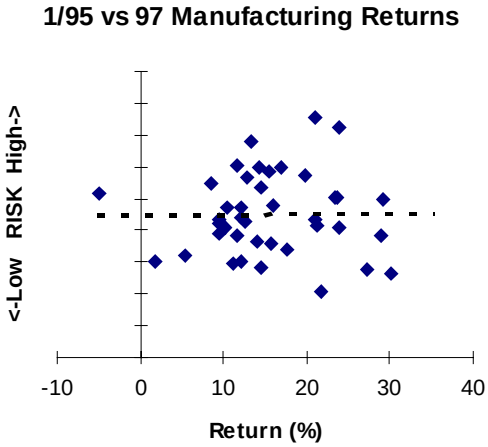


Figure 2d.



Footnotes

[1] The Economist Intelligence Unit (EIU), Political Risk Services' Risk Letter and International Country Risk Guide, Standard & Poor's DRI and risk rating, The WEFA Group, Standard & Poor's, Moody's, Euromoney, BERI, Rundt's, to list a few.

[2] Risk measures were obtained from marketing literature, subscriptions by the author's company and a Duke University web site (www.duke.edu/~charvey/Country_risk/pol/poltab6.htm). Services were provided anonymity by the author.

[3] Valid criticisms include the fact that exchange rate fluctuations affect historical investment positions. Also, because most direct investments earn less in early years, returns in countries just recently open to U.S. direct investment will most likely be understated relative to countries with a long-established U.S. investment position.

[4] See the July 99 issue of *Business Economics* for a more detailed discussion of the author's methods to calculate risk measures.

References

Coplin, William D. and & O'Leary, Michael K., editors, *The Handbook of Country and Political Risk Analysis*, East Syracuse, New York: Political Risk Services, International Business Communications, 1994.

Siegel, Sidney, *Nonparametric Statistics for the Behavioral Sciences*, New York: McGraw-Hill, Inc., 1956.

U.S. Bureau of Economic Analysis, *Survey of Current Business*, October, 1998.