

## THE IMPORTANCE OF COUNTRY RISK INDICATORS SYSTEM FOR THE INTERNATIONAL COMPANIES

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Abstract:

The globalization of the world economies, and in particular the internationalization of financial markets in the last decades, have dramatically expanded and diversified investment possibilities, leading to numerous new opportunities, accompanied by new risks. Consequently, there has been growing interest in obtaining reliable estimates of the risk of investing in different countries.

The central objective of this paper is to develop a transparent, consistent, self contained, and stable country risk rating system. The proposed system uses economic-financial and political variables.

Country risk ratings impact countries in a number of ways. The primary significance of ratings is due to their influence on the interest rates at which countries can obtain credit on the international financial markets: the higher the ratings (i.e., the lower the risk of default) the lower the interest rate.

Second, sovereign ratings also influence credit ratings of national banks and companies, and affect their attractiveness to foreign investors. Ferri et al. (2001) call sovereign ratings the "pivot of all other country's ratings". Similarly, Erb et al. (1995a) underline that raters have historically shown a reluctance to give a company a higher credit rating than that of the sovereign where the company operates. For example, after Moody's downgraded Japan in November 1998 (from Aaa to Aa1), all other Aaa Japan issuers have been downgraded (Jüttner & McCarthy, 2000). This led sovereign ratings to be named "sovereign credit risk ceilings".

Third, institutional investors are sometimes contractually restricted on the degree of risk they can assume, implying in particular that they cannot invest in debt rated below a prescribed level. Ferri et al. (2001) refine this analysis, pointing out the contrast between the ratings of banks operating in high- and low-income countries, and show that ratings of banks operating in low income countries are significantly affected by variations in sovereign ratings, while the ratings of banks operating in high-income countries do not seem to depend significantly on country ratings. Similarly, Kaminsky and Schmukler (2000) as well as Larrain et al. (1997) note that sovereign ratings are crucial for developing economies, which have a very high sensitivity to rating announcements.

*The wide acceptance of several of the major rating systems indicates that, while they may not be perfect, they provide the currently best-known evaluation of country risk. It is therefore reasonable to base the design of any new rating system on one of the existing ones. The **central objective** of this paper is to develop a transparent, consistent, self-contained, and stable system for country risk assessment.*

### 1. The country risk concept

Different definitions have been proposed for country risk, i.e. for the risk that a country defaults on its obligations. The existing literature on the topic recognizes both financial/economic and political components of country risk. According to the degree to which some of these components are emphasized, country risk is viewed either from the

financial/economic perspective only, or from the combined financial/economic and political perspectives.

There are two basic approaches to the interpretation of the reasons for defaulting.

- The *debt service capacity approach* focuses on the deterioration of solvency of a country, which prevents it from fulfilling its commitments. For instance, Bourke and Shanmugam (1990) define country risk as “the risk that a country will be unable to service its external debt due to an inability to generate sufficient foreign exchange”. Within this framework, country risk is viewed as a function of various financial and economic country parameters.
- The *cost-benefit approach* views a default on commitments or a rescheduling of debt as a deliberate choice of the country, which may prefer this alternative over repayment, in spite of its possible long-term negative effects (e.g. the country’s exclusion from certain capital markets, reputation damage). Since the deliberate decision to default results from a political process, political country parameters are included in this type of country risk modeling, along with the financial and economic ones. This approach is strongly recommended by Brewer and Rivoli (1990, 1997) as well as Citron and Neckelburg (1987), who emphasize the impact of the political stability indicator on country risk ratings.

In response to the increased demand for the evaluation of creditworthiness, several agencies such as Moody’s, Standard & Poor, Fitch, the Institutional Investor, Euromoney, Dun & Bradstreet, etc. have developed expertise in estimating country risk. These estimates are presented in the form of ratings, or *scores*, and are generally viewed as indicative of possible future default. Haque et al. (1996) define country credit risk ratings compiled by commercial sources as an attempt “to estimate country-specific risks, particularly the probability that a country will default on its debt-servicing obligations”. Sovereign ratings can be viewed as the probability that a borrowing country will fail to pay back.

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In this paper I want to build a country risk ratings more (i) *transparent* and (ii) *consistent*. A third criterion I would like to impose on an ideal country risk rating system is that of (iii) *self-containment*, i.e. its non-reliance on any other past or present country risk ratings. Clearly, this requirement precludes the use of lagged ratings as independent variables. It is important to note that this approach is in marked contrast with that of the current literature (Haque et al., 1996 & 1998, Monfort and Mulder, 2000). Finally, a fourth requirement imposed on the model is its (iv) *stability*, i.e. extensibility to subsequent years and previously unrated countries.

As mentioned above, country risk ratings encompass economic, financial and political aspects. The statistical data of the economic and financial variables considered in this paper come from the International Monetary Fund (World Economic Outlook database), from the World Bank (World Development Indicators database) while those about the ratio of debt to gross domestic product come from Moody's publications. Values of political variables are provided by Kaufmann et al. in two papers (1999a,b) that are joint products of the Macroeconomics and Growth, Development Research Group and Governance, Regulation and Finance Institutes which are affiliated with the World Bank.

## 2.Variable selection criteria

As underlined by Bilson et al. (2001), the selection of variables lends itself to criticism due to the subjectivity and arbitrariness involved in this process. In this paper, the selection of relevant variables is based on three criteria.

The first criterion is the significance of variables for estimating a country's creditworthiness. We have performed an extensive literature review which played an important role in defining the set of candidate variables for inclusion in our model.

The second criterion is the availability of complete and reliable statistics. We want to avoid difficulties related to missing data that could reduce the statistical significance and the scope of our analysis. For instance, according to recent information received from The World Bank, their research concentrates on developing economies and they have data on the debt of 137 countries to whom they loan funds and who report their external debt to The World Bank. Since high income countries do not receive World Bank funds, they do not report their debt numbers to The World Bank. Such situations have significantly complicated the process of compiling complete debt statistics. Hu et al. (2002) also report the problem of data availability.

The third criterion is the uniformity of data across countries. We have considered, for example, incorporating the unemployment rate statistics disclosed by the World Bank. However, the World Bank underlines that unemployment is analyzed and compiled according to definitions which differ from country to country.

Based on the criteria of relevance, availability and uniformity described above, we have decided to incorporate the following variables<sup>13</sup> in our model:

- *Gross domestic product per capita (GDPc)*: the *GDP* is the sum of gross value added by all
- resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. The *GDP* is an indication of the capacity of the government to solve a balance-of-payments crisis without having to default on external debt. The larger the *GDP*, the wider the potential tax base and thus the higher the ability of the

government to fulfill its external obligations. The *GDPc* is a measure of the relative wealth of a country and its level of development. The gross domestic product (*GDP*) is converted to international dollars using purchasing power parity rates. The international dollar has the same purchasing power over *GDP* as the U.S. dollar has in the United States.

- *Inflation rate (IR)*: the inflation rate is the change in the national price level between two periods. The inflation rate used in our study is based on the consumer price index and is the annual percentage change in the cost to the average consumer of acquiring a fixed basket of goods and services. High inflation rates indicate structural problems in the country's finances and may lead to sovereign economic crises, as governments hike interest rates sharply in order to strengthen their countries' currencies. Should a country be unable or unwilling to pay the current budgetary expenses, it must resort to inflationary money financing. High inflation rate results in a substantial consumers' purchasing power reduction and increases political discontent.
- *Trade balance (TB)*: trade balance is the balance of trade in goods expressed as a percentage of *GDP* (purchasing power parity-PPP). This is the difference in value between a country's total imports and exports (including information of oil and non oil exports, consumer goods, capital goods) measured in current U.S. dollars divided by the value of *GDP* converted into international dollars using purchasing power parity rates.
- *Exports' growth rate (EGR)*: annual growth rate of exports of goods and services based on constant local currency. Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude labor and property income as well as transfer payments. Countries having a high export growth rate are expected to be more creditworthy. Indeed, exports are the primary source of foreign currency inflows and therefore have a significant influence on the capacity of the country to finance imports and service debt obligations.
- *International reserves (RES)*: this variable refers to gross international reserves, expressed in terms of the number of months for which the existing reserves can cover the cost of imports of goods and services. It gives an indication of the short-term capacity of an economy to meet its imports obligations. The higher the value of *RES*, the lower the risk of default and the higher the creditworthiness.
- *Fiscal balance (FB)*: fiscal balance is approximated by the ratio of central government financial balance (surplus or deficit) to *GDP*. The central government's balance represents the yearly fiscal balance. Fiscal balances and debt stocks of governments are crucial indicators when analyzing sovereign risk. The ability of governments to extract revenues from taxpayers and users of services is a key factor that helps to determine whether governments will be able to make full and timely payments of interest and principal on outstanding debt.
- *Debt to GDP (DGDP)*: here debt refers to the general government debt. The general government debt as defined by the IMF (2001) includes "the consolidated budgets of the central, state/regional, and local governments, along with the social security system and other extrabudgetary funds engaged in noncommercial activities. Excluded are lending and refinancing and the assets/liabilities of commercial state-owned or guaranteed enterprises, except for any net financial transfers made as subsidies to these enterprises". This balance, i.e., the difference

between total revenues and total expenditures, determines the net borrowing requirement of general government, which can be met only by running down financial assets or borrowing net new resources from the public and, thereby, adding to debt.

We have considered incorporating the unemployment rate and the ratio of the current account balance to GDP. While the latter turned out to be redundant with trade as a percentage of GDP, the former has been excluded from consideration due to the lack of consistency in its definition. As noted by the World Bank, the treatment reserved to temporarily laid off workers, to those looking for their first job, and the criteria referred to for being considered as unemployed, differ significantly between countries.

For political variables, it is very difficult to find reliable and complete data. In our model, we have considered the six variables provided by Kaufmann et al. (1999a). These six variables are: political stability and violence, voice and accountability, government effectiveness, regulatory burden, corruption, rule of law. These variables are viewed as capturing the fundamentals of the governance concept defined as “the traditions and institutions by which authority in a country is exercised” (Kaufmann et al., 1999a). As emphasized by Kaufmann et al. (1999, a and b), political stability and voice and accountability both refer to the process by which governments are elected, monitored and replaced. Government effectiveness and regulatory burden reflect the capacity of the government to adopt sound policies. Corruption and rule of law are proxies for the “respect of citizens and institutions for the rules which govern their interactions”. In order to avoid or at least limit redundancies in our model, we select only one variable for each dimension of governance. We have selected:

- *Political stability (PS)*,
- *Government effectiveness (GE)*, and
- *Corruption (COR)*.

The higher the values of these variables, the less likely the country is to default<sup>15</sup>. The variables are defined on a (-3.5, 3.5) interval and are based on estimations provided by polls of experts and cross-country surveys.

The variables we have described so far have been considered previously in the literature and are available in the form used in our study (as ratios or as growth rates). We have also decided to construct a new variable (*ER*) and to add a variable (financial depth and efficiency) which, to the best of our knowledge, has not been used before in country rating studies. Here are the descriptions of these two variables:

- *Exchange rate (ER)*: is defined as the ratio of the current value of the exchange rate to the moving average of the real effective exchange rate<sup>16</sup> over five years (1994 to 1998). While the exchange rate has been used in previous country rating studies, we consider the ratio introduced here to be more significant, since it indicates the dynamics of changes in the exchange rate, by specifying whether the trend is up ( $ER > 1$ ) or down ( $ER < 1$ ).
- *Financial depth and efficiency (FDE)*: is represented by the ratio of the domestic credit provided by the banking sector to the *GDP*. Households accumulate claims on financial institutions that, acting as intermediaries, pass funds to final users. Correlated to the development of the economy, the indirect lending by savers to investors becomes more efficient and gradually increases assets relative to the *GDP*. Viewed from this perspective, the ratio of domestic credit to the *GDP* reflects the financial depth and efficiency of the country's financial system. More specifically, this variable is used to measure the growth of the banking system since it reflects the extent to which savings are financial. To our knowledge, the financial



depth and efficiency variable has not been considered previously in the evaluation of country risk ratings.

In summary, on the basis of the considerations described above, we have constructed a dataset involving nine economic/financial variables:

- gross domestic product per capita, inflation rate, trade balance, international reserves, fiscal balance, exports growth rate, debt to *GDP*, financial depth and efficiency, and exchange rate

and three political variables:

- . political stability, government effectiveness and corruption level.

We have compiled the values of these twelve variables for the sixty-nine countries considered: 24 industrialized countries, 11 Eastern European countries, 8 Asian countries, 10 Middle Eastern countries, 15 Latin American countries and South Africa. We used the Standard & Poor country risk ratings for these countries at the end of December of 2004 and the results were very good..

### References:

- 1) Alexe S., Hammer P. L., Kogan A. and Lejeune M. A. 2003a. Country Risk Rating Based on Pairwise Comparisons. Piscataway, New Jersey, RUTCOR, Rutgers University.
- 2) Alexe S., Hammer P. L., Kogan A. and Lejeune M.A. 2003b. A Combinatorial Approach to Country Risk Rating. Piscataway, New Jersey, RUTCOR, Rutgers University.
- 3) Cantor R. and Packer F. 1996. Determinants and Impact of Sovereign Credit Ratings. *FRBNY Economic Policy Review*, 37-53.
- 4) Claessens S. and Embrechts G. 2002. Basel II, Sovereign Ratings and Transfer Risk: External versus Internal Ratings. Presentation at the *Basel II: An Economic Assessment, Bank for International Settlements*, Basel, Switzerland.
- 5) Cosset J.C., Siskos Y. and Zopounidis C. 1992. Evaluating Country Risk: A Decision Support Approach. *Global Finance Journal* 3, 79-95.
- 6) Haque N.U., Kumar M.S., Mark N. and Mathieson D. 1996. The Economic Content of Indicators of Developing Country Creditworthiness. *International Monetary Fund Working Paper* 43, 688-724.
- 7) Haque N.U., Kumar M.S., Mark N. and Mathieson D. 1998. The Relative Importance of Political and Economic Variables in Creditworthiness Ratings. *International Monetary Fund Working Paper* 46, 1-13.
- 8) Haque N.U., Mark N. and Mathieson D. 1997. Rating the Raters of Country Creditworthiness. *Finance & Development* 34, 10-13.
- 9) Hu Y.-T., Kiesel R. and Perraudin W. 2002. The Estimation of Transition Matrices for Sovereign Credit Ratings. *Journal of Banking and Finance* 26, 1383-1406.
- 10) Kaufmann D., Kraay A. and Zoido-Lobaton P. 1999a. Aggregating Governance Indicators. *World Bank Policy Research Department Working Paper* 2195.
- 11) Kaufmann D., Kraay A. and Zoido-Lobaton P. 1999b. Governance Matters. *World Bank Policy Research*
- 12) Kaufmann D., Kraay A. and Zoido-Lobaton P. 2002. Governance Matters II: Updated Indicators for 2000/01. *World Bank Policy Research Department Working Paper* 2772,