

T.C.
MARMARA ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ
İKTİSAT ANABİLİMDALI
İKTİSAT (İNG) BİLİM DALI

**COUNTRY RISK RATINGS AND
DEVELOPING COUNTRIES**

Yüksek Lisans Tezi

MAHİR AŞKAR

İstanbul, 2008

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Danışman: PROF. DR. FATMA DOĞRUEL

İstanbul, 2008

Marmara Üniversitesi
Sosyal Bilimler Enstitüsü Müdürlüğü

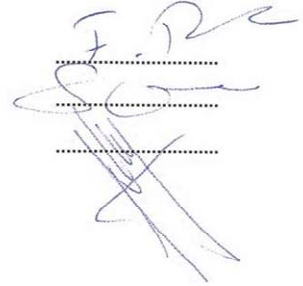
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ÖZET

Son on yıllarda, küresel piyasalarda yaşanan finansal serbestinin sonucu olarak, dünya çapında yatırım olasılıkları artmış ve bu gelişme birçok fırsatla birlikte risklerin oluşmasına neden olmuştur. Bu yüzden ülke riski analizi çok önem kazanmıştır. Bu gelişmelere bağlı olarak, akademisyenler ve pratisyenler ülke risklerini doğru ve eksiksiz bir yolla ölçmek için farklı değerlendirme modelleri geliştirmişlerdir.

Bu çalışmada, öncelikle, ülke riski kavramı ve literatürde kullanılan farklı tanımlar tartışılmıştır. Ardından, ülke riski değerlendirme yöntemleri olan nitel yaklaşım, derecelendirme ve nicel analiz irdelenmiştir. Bu yöntemlerden, derecelendirme yöntemi ülke risk derecelendirmeleri yayınlayan kurumlar ve derecelendirme yöntemleri esas alınarak kapsamlı bir biçimde incelenmiştir. Son olarak, Feder ve Just (1977)'nin modeline dayanan, gelişmekte olan ülkelerin borç öteleme davranışlarının nedenlerini anlamak için nicel bir analiz yapılmıştır.

Anahtar Kelimeler: Ülke Riski, Ülke Riski Değerlendirmesi, Borç Öteleme

ABSTRACT

As a result of financial liberalization achieved in global markets in last decades, investment possibilities around the world have been boosted and this development has led to lots of opportunities and risks. Therefore, country risk analysis has gained significant importance. Afterward, academicians and practitioners have developed various assessment models to evaluate country risk in a precise and accurate way.

This study first discusses the concept of country risk and its various definitions used throughout the literature. Then, country risk assessment methodologies: qualitative approach, ratings and quantitative analysis are considered. Of these techniques, ratings have been argued in detail with special reference to country risk rating entities and their rating methods. Finally, a quantitative study, which is based on the model introduced by Feder and Just (1977), in order to understand the reasons behind debt rescheduling behavior of developing countries, is conducted.

Key words: Country Risk, Country Risk Assessment, Debt Rescheduling.

Preface

I believe that, in general, each causal proposition has inspired from an experience or an idea. Hence, in this study, I am indebted very much to my experience in the field of risk management.

This work owes greatly to the encouragement of my supervisor, Prof. Dr. Fatma Dogruel in the form of comments, suggestions, criticism, advice, time spending and especially her patience, to combine our knowledge in the field of economics with my practice in the field of risk management. Therefore, I am grateful for her precious guidance and support.

Finally, I would like to state my appreciation for valuable comments, suggestions and contributions of Prof. Dr. Ali Suut Dogruel and Assistant Prof. Dr. Muge Karacal.

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List of Abbreviations

ANN: Artificial Neural Network

OLS: Ordinary Least Squares

FDI: Foreign Direct Investment

GDP: Gross Domestic Product

GDS: Gross Domestic Savings

GNI: Gross National Income

GNP: Gross National Product

BERI: Business Environment Risk Intelligence

CRS: Country Risk Service

EIU: Economist Intelligence Unit

ICRG: International Country Risk Guide

PRS: Political Risk Services

CPFER: Composite Political, Financial and Economic Risk Ratings

ER: Total Economic Risk Indicators

FR: Total Financial Risk Indicators

ORI: Operational Risk Index

PR: Total Political Risk Indicators

PRI: Political Risk Index

R factor: Remittance and Repatriation Factor

HIPC: Heavily Indebted Poor Countries

IBRD: The International Bank for Reconstruction and Development

IDA: International Development Association

IMF: International Monetary Fund

GDF: Global Development Finance

WDI: World Development Indicators

1 Introduction

After the collapse of Bretton Woods's system and particularly since the beginning of the 1990s, the globalization and financial liberalization in the world increased greatly. These changes have significantly enlarged and diversified investment possibilities, leading to lots of new opportunities and risks. Hence, reliable estimates taking all risks into account in order to make investment decisions in different countries are crucial. Academicians and practitioners have concerned this issue very much and it has led to development of the concept of country risk and country risk assessment methodologies.

Simon (1982) (as quoted in Oetzel et al. 2001) acknowledges that country risk analysis has begun in 1970s with Robock's 1971 article written on political risk. In general, the concept of country risk is defined as a combination of economic, political and financial risks. Majority of the authors define country risk more or less with same wording as the ability and willingness of the nation in question to honor its foreign debt obligations. Hence, this definition encompasses both political (the willingness to honor) and economic (the ability to honor) risk components of country risk. Some of the authors don't make an explicit definition in their studies on country risk but use financial, economic and political risk factors in the models employed in order to explain country risk. Thus, it can be inferred that country risk is regarded as a concept consisting of economic, financial and political issues. Finally, few authors focus mainly on political component of the country risk and believe that country risk is mainly driven by political risk rather than economic and financial risks.

Country risk assessment methodologies can be classified in three groups, namely, qualitative approach, ratings and quantitative analysis. Qualitative approach is interested in the assessment of the economic, financial and political fundamentals that may affect country risk. It aims to exhibit development process of the country with its strengths and weaknesses. Country risk ratings involve complex calculation based on pre-defined methodology which summarizes the associated risk for the country in question with one single figure. Finally, quantitative based approach involves advanced econometric and mathematical models which demonstrate statistical relation with the variables used in the models and country risk.

There are several major country risk rating entities employing different methods in order to assess country risk. Of these agencies, Moody's Investors Service, Standard and Poor's Rating Group, Fitch Ratings, Euromoney, Institutional Investor, The PRS Group: International Country Risk Guide, The PRS Group: Political Risk Services, Business Environment Risk Intelligence (BERI) S.A., and Economist Intelligence Unit (EIU) would be argued in detail within this study.

Apart from the arguments made until now, an econometric study which involves panel logit analysis to find out variables explaining significantly debt servicing capacity of developing countries in question would be conducted. The dependent variable is the probability of debt rescheduling in the model utilized, which was introduced to country risk literature by Feder and Just (1977). Since the sample data exhibits occurrence or nonoccurrence of debt rescheduling for the country involved, based on Paris Club releases, at a particular year t , the dependent variable would be a binary value. Related observation in the sample would take the value of 1 if the country of interest is rescheduled at year t and, otherwise, it would take the value of 0 . The

explanatory variables in the model would be chosen according to theoretical justification.

After model building, country selection criteria and variables of the model where criteria for variable selection are based on Alexe et al. (2004) would be discussed. Then, estimation result of the study will be presented. Finally, after concluding the thesis, literature review on explanatory variables used in studies on country risk, World Bank classification of economies and Paris Club releases on debt rescheduling for developing countries employed in the model will be shown in the appendix.

2 Review of Literature

2.1 Country Risk

The history of country risk analysis has begun in 1970s. Hence, in fact, the field is relatively new area of research. Simon (1982) (as quoted in Oetzel et al. 2001) asserts that the field did not take off until after Robock's 1971 article which was the first to link independent and dependent variables of political risk.

Country risk is regarded as a concept consisting of economic, financial and political risks. Regarding country risk literature, it is generally accepted that economic, financial and political risks affect each other. In the literature, authors define country risk based on the combination of these three major components. Some of them give much importance to economic and financial risks while others pay attention to political risk.

Economic risk arises from a country's macro-economic policies. For example, a sound monetary policy leading to low inflation will reduce the country risk and as the economic conditions of the country interested in becomes unstable, country risk will increase. Financial risk is related to ability of a country to meet its foreign debts. It is commonly known that a very high level of debts will lead to a rise in the risk of financial insolvency while low levels of debts will diminish it. Nagy (1988) (as quoted in Hoti and McAleer 2004) states that economic and financial risks include factors such as sudden deterioration in the country's terms of trade, rapid increases in production costs and/or energy prices, unproductively invested foreign funds, and unwise lending by foreign banks.

Political risk is generally viewed as non-economic related risks and driven strictly by political factors such as changes in political system, internal and external conflicts, wars and terrorist attacks. Coplin and O'Leary (1983) (as quoted in Oetzel et al. 2001) affirms that political risk is the analysis of political events and conditions that could cause loss to international business.

Robock (1971) (as quoted in Oetzel et al. 2001) divide political risk factors into macro- and micro- risk components. Macro risk refers to unexpected and politically motivated environmental changes directed at all foreign enterprise. Micro-risk, on the other hand, is involved with environmental changes that only affect selected industries or firms in a country.

Howell and Chaddik (1994) (as quoted in Bilson et al. 2000) acknowledges that political risk can encompass many factors and events such as blocked funds, repatriation constraints in the form of exchange controls, expropriation or nationalization of property and resources, inconvertibility of currency, war damage, civil strife, actions against personnel (e.g. kidnapping), limits on remittances, government interferences with contractual terms, discriminatory taxation, politically-based regulations on operations and the loss of copyright protection.

Feder and Just (1977) relates country risk to debt servicing capacity of a country. According to them, country risk arises from the ability and willingness of the nation in question to honor its foreign debt obligations. To Krayenbuehl (1985) (as quoted in Hoti and McAleer 2004), country risk refers broadly to the likelihood that a sovereign state or borrower from a particular country may be unable and/or unwilling to fulfill their obligations towards one or more foreign lenders and/or investors. Cosset et

al. (1992) defines country risk as the probability that a country will fail to generate enough foreign exchange to service its foreign currency loans.

Bourke (1990) (as quoted in Simpson 1997) declares that country risk is the ability of a country to generate enough foreign exchange reserves to service its external debt obligations. Roy and Roy (1994) (as quoted in Simpson 1997) take this definition a little further and describe sovereign debt risk. Sovereign debt risk is considered as the potential for financial loss which might arise from economic or political events. According to Ghose (1988) (as quoted in Hoti and McAleer 2004) sovereign risk occurs when a sovereign government does not pay its obligations, and when a sovereign government prevents its corporations and/or individuals from fulfilling such obligations.

Although the authors like Feder and Uy (1985), Abdullah (1985), Citron and Nickelsburg (1987) and Brewer and Rivoli (1990) do not make an explicit definition of country risk, there are variables representing political factors as well as economic and financial factors in their empirical studies. Thus, it can be inferred that country risk is perceived as a risk arising from economic, financial and political issues.

Some authors concentrate on political component of the country risk and believe that country risk is mainly driven by political risk rather than economic and financial risks. Bouchet et al. (2003:13) points out that authors like Zenoff (1967), Aliber (1975), Baglini (1976) or Feils and Sabac (2000), country risk narrowly originates from adverse governmental or sovereign actions. Moreover, Harvey (1993) (as quoted in Oetzl et al. 2001) states that some studies examined specifically the effects of risk of terrorist threats on country risk.

2.2 Country Risk Assessment Methodologies

Having made a literature review on definitions of country risk and its components, let us now discuss country risk assessment techniques. The methodologies developed to measure country risk can be classified in three groups. These are, namely, qualitative approach, ratings and quantitative analysis. Of these methods to assess country risk, ratings and quantitative based analysis have interested academically.

Qualitative approach involves the assessment of the economic, financial and political fundamentals that can affect country risk. Instead of dealing with complex calculation of ratings which summarize the country risk with one single figure and advanced econometric and mathematical models which represent statistical relation with the variables used in the models and country risk, qualitative analysis aims to show development process of the country in question with its strengths and weaknesses.

Qualitative approach gets its strength from shortcomings of the quantitative based approaches. For example, if no historical data is available, then it will be impossible to make a quantitative based analysis. Additionally, if the historical data of the country in question exhibits significant amount of missing data, then the analysis made might lose significance due to lack of information. As an example of the argument above, consider the case of Iraq which is highly politically unstable country because of internal and external conflicts and wars. Since no historical data is available even for the major economic indicator like gross domestic product, a quantitative based analysis cannot be conducted to measure country risk.

It is crucial to note that, when making a quantitative analysis, all the social and political factors affecting country risk may not be introduced into the model due to

missing data of the variables of interest. Hence, a model ignoring partially or completely political aspects of country risk may give same information for countries having similar economic and financial conditions but exhibits many differences politically.

Four shortcomings of the quantitative approach to country risk assessment are:

“1. Two countries facing similar ratios and financial indicators may face considerably different socio-economic structures.

2. Quantitative data are either not available on time, or data incomplete, wrong or distorted.

3. Interpretation is made exceedingly difficult given mixed and often contradictory signals.

4. “Figures seem sound but are subject to considerable volatility due to regional contagion, herd instinct, and external shocks including downgrading by rating agencies.” (Bouchet et al., 2003, p.50)

One dimension of the qualitative approach to country risk assessment involves the assessment of welfare and social indicators of the country in question. Social component of the country risk can be taken into account by assessing components like educational services, health services, population growth rate and life expectancy. For example, high life expectancy in a country can be regarded as an indication of highly developed nation. Additionally, it can be inferred that country risk involved would be low due to the high development process of the country. GNP (GDP) per capita can be

shown as an example to welfare component of country risk. Higher the GNP (GDP) per capita, probably lower would be the country risk.

Another dimension of the qualitative approach is the assessment of macroeconomic fundamentals of a country. Macroeconomic fundamentals such as GNP (GDP) growth, foreign direct investment level, current account balance, balance of payments, trade openness are important factors in explaining country risk. For example, sustainable economic growth can be regarded as a factor reducing country risk whereas high current account deficit might be considered as a factor contributing to increase country risk due to the fact that high current account balance might trigger a financial crisis if it cannot be managed correctly.

Moreover, debt burden of a country should be considered when conducting a qualitative country risk analysis. If the country has a high foreign debt level, then, it might become insolvent which will surely increase country risk. Considering ratios such as debt service payments, debt to GNP (GDP) might be very useful in order to assess country risk in this way.

Finally, political system of the country analyzed should be taken into account in explaining country risk qualitatively. A country such as Canada having high democracy is expected to reduce country risk while a country like Iraq is expected to increase country risk greatly due to political conflicts. Political factors such as transparency, corruption are also important in explaining country risk. For example, if corruption, which is generally a problem of underdeveloped economies, is high in the country, it can be argued that the country would probably have high country risk.

The second approach to measure country risk is ratings. It can be regarded as a comparative approach measuring the relative risk degree of the countries in question. Hence, the aim of rating methodologies is to rank countries based on the risks they face.

It is generally accepted that measurement of relative level of risk is much easier than an absolute level of risk. Thus, remembering the fact that rating provides comparative level of risk, once a rating system with a single figure for each risk level is established, it is straightforward to assign the related figure to the countries analyzed based on the mechanism of the rating system employed.

Country risk ratings help business managers when making a decision about an investment in the country of interest. Rating figure, in this case, will be very useful in order to make a risk return comparison. The manager might perceive investing in risky country if the related return is high or might accept much lower return if the associated risk is represented with a sound figure. Additionally, it provides good intuitions for creditors. Creditors will probably make their decision considering the associated risk levels. If the country has a good rating figure, they would ask for lower interest charge. However, if it has a risky rating figure, they would ask for higher interest charge on the credits provided.

There are many ratings entities with various rating methodologies developed to measure country risk. Their methodologies rely on combinations of qualitative and quantitative methods. In general, firstly, a score is computed according to the utilized method. Then, the computed score is mapped to a rating figure. Information about the rating entities is explained in the country risk ratings section of the thesis.

Finally, quantitative based approaches to measure country risk are discriminant analysis, logit/probit models, cluster techniques and hybrid neural networks. Discriminant analysis of quantitative approach is a statistical method based on classification of observations into one of several priori groupings. Feder, Just and Ross (1981) claims that the first study on discriminant analysis was conducted by Frank and Cline (1971). In their study, they identified three variables (the ratio of debt service to export revenues, the ratio of debt to amortization payments, and the ratio of imports to reserves) in order to forecast debt servicing difficulties. In order to make a discriminant analysis, three steps are involved:

“1. Establish mutually exclusive group classifications. Each group is distinguished by a probability distribution of the characteristics.

2. Collect data for each of the groups.

3. Derive the linear combinations of the characteristics that best discriminate between the groups. “Best” in this sense means the discriminations that minimize the probability of misclassification.” (Bouchet et al., 2003, p.115)

The idea behind discrimination analysis is to establish a criterion that will be used to discriminate among the groups involved based on historical data series. Then, the aim of such analysis is to minimize the number of misclassifications. If the measurement statistics like standard deviation is not very reliable, then groups might overlap. In a perfect model, there would be no misclassifications.

Another quantitative based approach involves logit / probit models. Bouchet et al. (2003:117) claim that the first study using this approach to measure country risk was suggested by Feder and Just (1977). In their study, they explained probability of debt

rescheduling applying a logit model with economic variables. In the logit model, the dependent variable is a binary value. In such kind of modeling the dependent variable would take the value of zero if the specified criteria is met and, otherwise, it would take the value of one.

Cluster techniques are divided into *hierarchical cluster analysis* and *Kohonen networks*. The idea behind hierarchical cluster analysis is that selected indicators should be relatively homogenous among the countries that belong to the same cluster. Thus, output of this analysis would be grouping countries into clusters such as high and low risk countries. Kohonen networks aims to group a set of input patterns into a number of unknown groups such that the observations in each group have similar characteristics. Its final output is a map allowing the visualization and interpretations of clusters. (Yim and Mitchell, 2005)

Hybrid neural networks are techniques to overcome the classification problems by integrating the variables selected by statistical models and the outputs of statistical models with those of an ordinary artificial neural network (ANN). The goal of this method is to create a more accurate hybrid model than either of techniques. Yim and Mitchell (2005) have considered two different approaches to hybrid models. *“The first approach is to use statistical methods to select the variables to be used as inputs to the ANN. The second one is to use output, such as an estimated probability, as an input to a neural net. We decided to combine ANN’s and statistical models because ANN’s have problems when dealing with large numbers of variables. These are the time taken for this selection and the possibility of overfitting. By combining statistical models with ANN’s we can reduce the problems in the following ways:*

- *Using statistical models to preselect variables reduces the risk of overfitting and also reduces the time taken to select the model.*
- *Using output from a statistical model as input to a ANN efficiently condenses information.” (Yim and Mitchell, 2005,p.138)*

Regarding the discussion we have made until now, it can be inferred that qualitative based assessment is useful when quantitative based approach cannot be used due to data problems. Ratings or quantitative based approaches are much more useful than the non-quantitative perceptions since they are based on past data and provide lots of information about the country in question. Here, it is crucial to note that comparison of rating approach with quantitative based models is very hard in order to make superiority assessments.

2.3 Country Risk Ratings

Country Risk Ratings, which is one of the mostly used country risk assessment method, have gained significant importance due to the existence of the several major country risk rating agencies, namely, Moody’s Investors Service, Standard and Poor’s Rating Group, Fitch Ratings, Euromoney, Institutional Investor, The PRS Group: International Country Risk Guide, The PRS Group: Political Risk Services, Business Environment Risk Intelligence (BERI) S.A., and Economist Intelligence Unit (EIU).

Each rating agency employs different methods in order to assess country risk. Their methodology, which assigns composite risk ratings, depends on combination of qualitative and quantitative methods taking into account economic, financial and political risks. These methodologies provide a more or less explicit score for the country in question and then this score is translated into a composite risk rating. Hence, detailed

review of the information about rating entities is crucial in order to have an idea about their rating methodologies employed to assess country risk.

Moody's Investors Service is one of the most respected and widely used sources for credit ratings in the world. Its ratings have begun in 1909 when John Moody introduced ratings to U.S. bond market in his Manual of Railroad Securities. Moody's rating services cover more than 100 nations, 12,000 corporate issuers, 29, 000 public finance issuers, 96,000 public finance obligations. Credit ratings provided by Moody's help investors to analyze credit risk arising from associated financial products. Since nations borrow money by local or foreign currencies or by fixed income securities issued by their governmental authority, the assessment of country risk involves analyzing the ratings related to these borrowing instruments. (Moody's Investors Service, 2008a)

Moody's utilizes a multidisciplinary approach to risk analysis taking into account all relevant risk factors and viewpoints to every rating analysis. Some basic principles guiding rating analysis are Emphasis on the Qualitative, Focus on the Long-Term, Global Consistency, Level and Predictability of Cash Flow, Reasonably Adverse Scenarios and “Seeing Through” Local Accounting Practices. (Moody's Investors Service, 2008b)

Emphasis on the Qualitative: Quantification is an integral to Moody's rating approach since it is objective. However, it is not based on defined set of financial ratios or rigid computer models and the contributions made by each high qualified and impartial credit analyst for each issue are very important. (Moody's Investors Service, 2008b)

Focus on the Long-Term: Moody's is intended to measure long-term risk involved. Hence, its approach focus on factors affecting long-term ability of the issuer's to meet debt payments. As a rule of thumb, the next economic cycle or longer is considered. (Moody's Investors Service, 2008b)

Global Consistency: Its approach is designed to promote universal comparability of rating opinions by incorporating several checks and balances. (Moody's Investors Service, 2008b)

Level and Predictability of Cash Flow: Its analyses focus on the assessment of level and predictability of an issuer's future cash generation. Hence, indentifying factors leading to increase or reduce future cash flows are important. (Moody's Investors Service, 2008b)

Reasonably Adverse Scenarios: In order to measure the issuer's ability to meet debt obligations according to issuer specific circumstances, reasonably different economic scenarios are conducted. (Moody's Investors Service, 2008b)

"Seeing Through" Local Accounting Practices: Regarding the fact that there exist different accounting systems around the world, Moody's focuses on understanding both reality of the underlying transactions and any differences in accounting conventions that might influence true economic values in processing financial data. (Moody's Investors Service, 2008b)

Since the first rating system introduced by John Moody in 1909, Moody's rating symbols and definitions have evolved according to needs of global capital markets. Nowadays, it maintains 32 rating systems, with the number growing every year. (Moody's Investors Service, 2008c)

In its simplest terms, Moody's ratings can be divided into credit and non-credit ratings. Of these, credit ratings like national scale ratings are opinions of credit quality of individual obligations or of an issuer's general creditworthiness. Non-credit ratings involve other aspects of risk such as equity fund ratings, market risk ratings and Lloyd's syndicate volatility ratings. (Moody's Investors Service, 2008c)

Moody's long-term obligation ratings are opinions of the relative credit risk of fixed-income obligations with an original maturity of one year or more and short-term ratings are opinions of the ability of the issuers to meet financial obligations with an original maturity not exceeding thirteen months unless explicitly expressed. (Moody's Investors Service, 2008c)

Standard and Poor's (S&P) Rating Group is one of the most prominent credit rating agencies. *"S&P's provides short- and long-term ratings, as well as a qualitative outlook on the sovereign's domestic and foreign currency reserves. Ratings are provided for seven major areas, namely long term debt, commercial paper, preferred stock, certificates of deposit, money market funds, mutual bond funds, and the claims-paying ability of insurance companies"*. (Hoti and McAleer, 2004, p. pages 554-555).

Standard and Poor's rating approach is a combination of both quantitative and qualitative methods. *"It is based on a checklist of 10 categories: political risk, income and economic structure, economic growth prospects, fiscal flexibility, general government debt burden, off-budget and contingent liabilities, monetary stability, external liquidity, public and private sector external debt burdens. Each group is graded from one to six. Nevertheless, S&P underlines the absence of any system of predetermined weightings."* (Bouchet et al., 2003, p.101).

Political risk: In this category, the impact of politics such as governmental support by public and international affairs on economic climate is measured. Bouchet et al. (2003:101)

Income and economic structure: Structural features of the country are assessed. This assessment involves analyzing of macroeconomic fundamentals and potential economic growth. It aims to show strengths and weakness of the country of interest in income generation and economic development. Bouchet et al. (2003:101)

Economic growth prospects: Potential economic growth is estimated based mainly on savings and investment rates. Bouchet et al. (2003:101)

Fiscal flexibility: It involves the analysis of fiscal balance of the country in question. Past and expected fiscal policies of the country are analyzed in order to display effectiveness of budget management. Bouchet et al. (2003:101)

General government debt burden: It is generally accepted that high debt level lead to a rise in vulnerability of the country. Hence, higher is the debt burden; lower would be the rating figure assigned to the country. Bouchet et al. (2003:101)

Off-budget and contingent liabilities: This is related to the health of financial sector and non-financial public sector. In case of an economic deterioration, government may chose to bail out too big to fail companies with taxpayer money in order to avoid contingent liabilities. Bouchet et al. (2003:101-102)

Monetary stability: High level of inflation damages economic outlooks of the country. Monetary stability is important for taking inflation under control. Thus, analyzing its potential evolution is crucial. Bouchet et al. (2003:102)

External liquidity: Current account balance is analyzed in order to find out external financing gap in relation to foreign exchange reserves. The country involved may become insolvent when it faces an unanticipated shock if it has a liquidity shortage due to high current account deficit. Bouchet et al. (2003:102)

Public sector external debt burdens: It shows the difference between total debt and the financial assets of all governmental and public institutions. Bouchet et al. (2003:102)

Private sector external debt burdens: It is calculated as borrowings from non-residents minus deposits with and lending to non-residents. Managing correctly public and private sector external debt burdens are crucial since they can fall under the state's responsibility in case of economic crisis. Bouchet et al. (2003:102)

Similar to Moody's and Standard and Poor's, Fitch Ratings is one of the world's leading global credit rating agency. It rates more than 90 countries. (Fitch Ratings, 2008a).

“According to Fitch (2002), if the sovereign borrowers:

. . . retain the right to print their own money, the question of default is largely an academic one. The risk instead is that a country may service its debt through excessive money creation, effectively eroding the value of its obligations through inflation. When a sovereign nation borrows in a foreign currency, however, there is a more serious risk of outright default since the sovereign borrower cannot print the means of servicing the debt.” (Bouchet et al., 2003, p.95).

Fitch's credit ratings provide an opinion on the relative ability of an entity to meet financial commitments, such as interest, preferred dividends, repayment of principal, insurance claims or counterparty obligations. Credit ratings are used by investors as indications of the likelihood of receiving their money back in due time. Fitch's credit ratings cover the global spectrum of corporate, sovereign (including supranational and sub-national), financial, bank, insurance, municipal and other public finance entities and the securities or other obligations they issue, as well as structured finance securities backed by receivables or other financial assets. (Fitch Ratings, 2008b)

Fitch Rating provides both short and long-term ratings and measures each with different models. Short-term ratings take into account forecast less than 12 months and are much more focused on the issue of liquidity. It considers mainly the level of foreign exchange reserves to imports and rapid capital outflows. Bouchet et al. (2003:97) acknowledges that the short-term ratings are grouped as F1 indicating highest credit quality, F2 showing good credit quality, F3 representing fair credit quality, B standing for speculative, C indicating high default risk, D showing default.

Contrary to short-term ratings, the long-term ratings consider the time horizon of one year or above and are commonly regarded with their function. Bouchet et al. (2003:97) declares that investment grades begin with AAA representing highest credit quality, AA showing very high credit quality, A indicating high credit quality, BBB representing good credit quality. Speculative grades start from BB representing speculative, followed by B representing highly speculative, CCC, CC and C standing for high default risk, and lastly DDD, DD, D showing default. The three default grades differentiate the expected degree of financial recovery for the unfortunate investor.

Fitch Ratings differentiate between foreign and local currency regarding international credit ratings which assess the capacity to meet foreign currency or local currency commitments on internationally comparable basis. In its methodology, Fitch ratings review the following checklist of criteria: “*Demographic, educational and structural factors, Labor market analysis, Structure of output and trade, Dynamism of the private sector, Balance of supply and demand, Balance of payments, Analysis of medium-term growth constraints, Macroeconomic policy, Trade and foreign investment policy, Banking and finance, External assets, External liabilities, Politics and the state, International position*” (Bouchet et al. , 2003, p.97).

Euromoney publishes semi-annual country risk ratings for 185 countries. Countries are scored based on nine factors, and are ranked accordingly. (Euromoney, 2008)

The country risk score consists of the following factors:

Political risk: Risk analysts assess each country based on a scale of ten to zero. The higher is the score; the better is the political conjecture. This factor has 25 % weights. (Euromoney, 2008)

Economic performance: It is based on results of Euromoney poll of economic projection and GNI, which is measured with Atlas method¹, per capita. Like political risk, this factor has 25 % weights too. (Euromoney, 2008)

¹ The Atlas method smoothes exchange rate fluctuations by using a three year moving average price adjusted conversion factor. The information is gathered from <http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20399244~menuPK:1504474~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html> (accessed 10 Sep 2008)

Debt indicators: It is calculated from “a formula using the following ratios: total debt stocks to GNP, debt service to exports, and current account balance to GNP” (Bouchet et al., 2003, p.103) collected from World Bank’s Global Development Finance. It has a weight of 10 %.

Debt in default or rescheduled: Scores of these indicators are based on the ratio of rescheduled debt to debt stocks which is taken from World Bank’s Global Development Finance. It has a weight of 10 %.(Euromoney, 2008)

Credit ratings: This indicator is average of nominal values are assigned to sovereign ratings from Moody’s Investors Service, Standard and Poor’s and Fitch. It has 10 % weights. (Euromoney, 2008)

Access to bank finance: It is “given by the ratio of disbursements of private, long-term unguaranteed loans to GNP with a better score for higher ratios” (Bouchet et al., 2003, p.103). It has a weight of 5 %.

Access to short-term finance: It takes into account OECD consensus groups and short-term cover available from the US Exim Bank and Atradius UK. It has 5 % weights. (Euromoney, 2008)

Access to capital markets: This indicator having 5 % weights shows each country’s accessibility to international markets. (Euromoney, 2008)

Discount on forfeiting: It reflects the average maximum tenor for forfeiting. The data for this factor is supplied by Atradius, London Forfeiting, Mezra Forfeiting and West LB investment banks. It has a weight of 5 %. (Euromoney, 2008)

Thus, 185 countries are scored on a scale of zero to one hundred according to grades obtained from the factors above from the worst to the best.

Institutional Investor provides semi-annual country risk ratings for more than 135 countries. In country risk literature, Institutional Investor country risk assessment is known as the banker's judgment.

Institutional Investor conducts semi-annual country risk surveys with leading international banks. The survey consists of bankers from 75 to 100 banks and respondents are asked to rank the countries surveyed based on scale of 0 to 100, with 100 standing for lowest risk. *"The individual ratings are weighted using the Institutional Investor formula, with greater weights assigned to responses based on the extent of a bank's worldwide exposure and the degree of sophistication of a bank's country risk model"*. (Hoti and McAleer, 2004, p. pages 553-554).

International Country Risk Guide (ICRG) of The PRS Group was founded in 1980 by the editors of International Reports which is a widely respected weekly newsletter on international finance and economics. ICRG monitors 140 countries and provides country risk ratings on a monthly basis. (The PRS Group, 2008a)

ICRG system is based on a set of 22 components including three major categories of risk: political, financial and economic risk. Of these components, political risk consists of 12 components and financial and economic risk each includes five components. Each component is assigned a risk point, with the highest number of points indicating the lowest potential risk for the related component and the lowest number represents the highest potential risk. The maximum point that can be given to any

component is pre-defined within the system and depends on the importance of that component to the overall risk of a country. (The PRS Group, 2008a)

ICRG assesses political risk subjectively based on the information provided by political risk components and economic and financial risk assessments are conducted on the basis of objective data. The risk ratings of these groups are then combined on a basis of formula to provide the composite risk rating, or the more precisely country's overall risk rating. Similar to risk rating components, the higher the rating computed for composite rating, the lower the risk, and vice versa. (The PRS Group, 2008a)

Political risk rating aims to provide a comparative assessment of political stability of the countries analyzed by ICRG. It is computed by assigning risk points to pre-set political risk components. The minimum point that can be given to each component is zero whereas the maximum point that can be assigned depends on the weights of component. As, in every case, the lower is the risk point the higher is the risk and the higher is the risk point the lower is the risk. (The PRS Group, 2008a)

Political risk rating is determined according to the following risk components:

Government stability: It involves assessment of government unity, legislative strength and popular support subcomponents. Each has a maximum score of four and minimum score of zero. Thus, the score of this component scales from zero to twelve. (The PRS Group, 2008a)

Socioeconomic condition: Its subcomponents are unemployment, consumer confidence and poverty. Similar to government stability, each component has equal weight with a maximum score of four and minimum score of zero. Hence, the score of this component has a range of zero to twelve. (The PRS Group, 2008a)

Investment profile: It is derived from the assessment of following subcomponents: contract viability/expropriation, profits repatriation and payments delays. It has a score scaling from zero to twelve with equal weight to each subcomponent. (The PRS Group, 2008a)

Internal conflict: It is based on the assessment of the subcomponents of civil war / coup threat, terrorism / political violence and civil disorder. Each has a maximum score of four and minimum score of zero. Thus, the score of this component scales from zero to twelve. (The PRS Group, 2008a)

External conflict: It is evaluated based on the subcomponents of war, cross-border conflict and foreign pressures. It has a score scaling from zero to twelve with equal weight to each factor affecting this component. (The PRS Group, 2008a)

Corruption: It involves assessment of the corruption within the political system. It threatens foreign investments for several reasons: it distorts the economic and financial environment; it reduces the efficiency of government and business by enabling people to have positions of power through patronage rather than ability; and introduces inherent instability into political progress. The score of this component has a range of zero to six. (The PRS Group, 2008a)

Military in politics: This factor measures the degree of military participation in politics. The score of this component scales from zero to six. (The PRS Group, 2008a)

Religious tensions: It is measured by degree of religious freedom, and the ability of several religious groups to live in harmony. The score of this component has a range of zero to six. (The PRS Group, 2008a)

Law and order: This factor has two subcomponents. Law is assessed by strength and impartiality of the legal system whereas the order is assessed by popular observance of law. It has a score scaling from zero to six with equal weight to each subcomponent. (The PRS Group, 2008a)

Ethnic tensions: It involves measurement of the degree of tolerance and compromise between different ethnics. Its score scales from zero to six. (The PRS Group, 2008a)

Democratic accountability: This component is measured by responsiveness of the government to its people. Five types of governance are defined in order to assign risk point for this subcomponent. These are alternating democracy, dominated democracy, de-facto one-party state, de jure one-party state, and autarchy. In general, highest risk point which means lowest risk is assigned to alternating democracies while the lowest risk point which means highest risk is given to autarchies. It has a score scaling from zero to six. (The PRS Group, 2008a)

Bureaucracy quality: It involves the measurement of the strengths and expertise of the bureaucracy to govern without drastic changes in policy or interruptions in government services. It has a score scaling from zero to four. (The PRS Group, 2008a)

Thus, political risk rating component is computed based on twelve qualitative subcomponents. As, it is clear from the scores of the subcomponents, political risk rating component scales from zero to 100. The classifications of risk categories based on the political risk rating points are: a rating of 0 % to 49.9 % indicates a very high

risk; 50 % to 59.9 % is a high risk; 60 % to 69.9 % is a moderate risk; 70 % to 79.9 % is a low risk; and 80 % or more is a very low risk. (The PRS Group, 2008a)

Economic risk rating aims to assess a country's current economic strengths and weaknesses. In general, when the strength of a country outweighs its weakness it will present a low economic risk and when its weakness outweighs its strength it will present a high economic risk. In order to make this assessment and assign a risk point to economic risk rating, pre-defined economic risk components are analyzed. The minimum risk points that can be assigned to each component is zero, while the maximum risk points that can be given to each component depends on weights of component in economic risk rating. Similar to political risk rating, in every case, the lower is the risk point the higher is the risk and the higher is the risk point the lower is the risk. (The PRS Group, 2008a)

Economic risk rating is based on the following five quantitative economic risk components:

GDP per head: For a given country; GDP per head is compared with average of total GDP of all countries covered by ICRG. Then, the risk point scaling from zero to five is assigned on the basis of pre-set ratios. The lower in the GDP per head ranking, the riskier the country would be. (The PRS Group, 2008a)

Real GDP growth: It involves the assessment of the percentage increase or decrease of annual change of GDP of a given country. The risk point is assigned according to pre-defined percentage increase (decrease) of real GDP growth. It has a score scaling from zero to ten. The higher is the real GDP growth, the lower is the associated risk. (The PRS Group, 2008a)

Annual inflation rate: Percentage change of the annual inflation rate is assessed and the risk point is assigned based on pre-set percentage change scale. The score of this component has a range of zero to ten. The more is the inflation level, the riskier the country is assumed to be. (The PRS Group, 2008a)

Budget balance as a percentage of GDP: Government budget balance excluding grants is compared to GDP on percentage basis and the risk score is assigned based on pre-defined percentage change scale. It has a range of zero to ten. The higher the budget deficit, the riskier the country is. (The PRS Group, 2008a)

Current Account as a percentage of GDP: The risk point to this component is assigned based on the pre-set current account percentage change defined in terms of GDP. The score of this component has a range of zero to fifteen. The higher the current account deficit, the riskier the country is. (The PRS Group, 2008a)

As it is clear from the argument above; the economic risk rating has a scale of zero to 50 points. The groupings of risk categories based on the economic risk rating points are: a rating of 0 % to 24.5 % indicates a very high risk, 25 % to 29.9 % is high risk, and 30% to 34.9 % is moderate risk and 40 % or more is very low risk. (The PRS Group, 2008a)

Financial risk rating is involved in assessment of a country's ability to pay its debt obligations. It is measured by assigned risk point to pre-set financial risk rating components. The minimum risk points that can be assigned to each component is zero, while the maximum risk points that can be given to each component depends on the importance of component in financial risk rating. Like other country risk components,

in every case, the lower is the total risk point the higher is the risk and the higher is the total risk point the lower is the risk. (The PRS Group, 2008a)

Financial risk rating is based on the following five quantitative financial risk components:

Foreign debt as a percentage of GDP: The risk point is assigned based on pre-defined ratio intervals of this component. The score of this component has a range of zero to ten. The higher is this ratio, the riskier is the country. (The PRS Group, 2008a)

Foreign debt service as a percentage of exports of goods and services: The risk point is assigned based on pre-set ratio intervals of this component and it has a range of zero to ten. The higher is this ratio, the riskier is the country. (The PRS Group, 2008a)

Current account as a percentage of exports of goods and services: The risk point is given based on pre-defined ratio intervals of this component and it has a range of zero to fifteen. The higher is this ratio, the riskier is the country. (The PRS Group, 2008a)

Net international liquidity as months of import cover: It is formulated as official reserves divided by the average monthly merchandise import cost. It provides a comparative liquidity risk ratio indicating how many months of imports can be financed with reserves. The score of this component has a range of zero to five. The shorter is the coverage period, the riskier is the country. (The PRS Group, 2008a)

Exchange rate stability: It measures the appreciation or depreciation of a currency against the US dollar over a calendar year on a percentage basis. The risk point is assigned based on pre-defined ratio intervals of this component and it has a range of

zero to ten. The more volatile is the exchange rate, the higher is the country risk. (The PRS Group, 2008a)

Consequently, financial risk component assessment involves assigning risk points to the financial ratios defined above. It has a scale of zero to 50 points. Risk categorization for this component depends on the financial risk rating points and their groupings are as the following: a rating of 0 % to 24.5 % indicates a very high risk, 25 % to 29.9 % is high risk, and 30% to 34.9 % is moderate risk and 40 % or more is very low risk. (The PRS Group, 2008a)

ICRG computes the composite risk ratings regarding political, economic and financial components. Of these components, political risk rating contributes 50 % of the composite rating while remaining two components contributes by 25 % each. The following formula is used in order to calculate the composite risk indicators:

$$\text{CPFER (country X)} = 0.5 (\text{PR} + \text{FR} + \text{ER})$$

where CPFER is composite political, financial and economic risk ratings, PR is total political risk indicators, FR is total financial risk indicators, and ER is total economic risk indicators. As it is clear, the score of CPFER has a range of zero to 100 and the highest rating indicates lowest risk and the lowest rating indicates highest risk. The classifications of risk categories based on the composite risk rating points are: a rating point of 0 to 49.5 indicates a very high risk; 50 to 59.5 is a high risk; 60 to 69.5 is a moderate risk; 70 to 79.5 is a low risk; and 80 to 100 is a very low risk. (The PRS Group, 2008a)

Political Risk Services of The PRS Group has been considered worldwide as the original system for quantifying and rating political risk. This system of independent

risk assessment was developed by Professors William D. Coplin and Michael K. O’Leary. It is the most widely accepted system of completely independent political risk forecasting and it applies its methodology to 100 countries in order to assess their risk.

Political Risk Services (PRS) system provides a decision-focused political risk model with three industry forecasts at micro level. It forecasts risk for investors in two stages. First, three most likely future regime scenarios for each country is identified, and then a probability to each scenario over each time period, 18 months and 5 years, is assigned. For each regime scenario, PRS’s experts then establish likely changes in the level of political turmoil, and 11 types of government interventions that affect business climate. (The PRS Group, 2008b)

After computing consolidated score for all regimes, PRS system converts these numbers into letter grades scaling from A+ to D- for three investment areas, namely, financial transfers (banking and lending), foreign direct investment (e.g. retail, manufacturing, mining) and export to the host country market. Hence, instead of a generic macro level assessment, PRS’ unique system provides only industry specific forecasts. (The PRS Group, 2008b)

PRS rating system uses 17 risk components, with twelve having eighteen-month forecast horizon and five having five-year forecast horizon. 18-month risk factors and their explanations are as the following:

Turmoil: It involves actions that can result in threats or harm to people or property by political groups or foreign governments. (The PRS Group, 2008b)

Equity restrictions: It is limitations on the foreign ownership of businesses, emphasizing sectors where limitations are either especially liberal or especially restrictive. (The PRS Group, 2008b)

Operations restrictions: It involves restrictions on general operational business activity such as restrictions on procurement, hiring foreign personnel, or locating business activities. (The PRS Group, 2008b)

Taxation discrimination: It involves the formal and informal tax policies that may lead to discrimination in international business. (The PRS Group, 2008b)

Repatriation restrictions: It arises from formal and informal rules regarding the repatriation of profits, dividends, and investment capital. (The PRS Group, 2008b)

Exchange controls: It involves the degree of freedom and easiness to convert local currency to foreign currency. (The PRS Group, 2008b)

Tariff barriers: It is the average and range of financial costs imposed on imports. (The PRS Group, 2008b)

Other import barriers: It is formal and informal quotas, licensing provisions, or other restrictions on imports. (The PRS Group, 2008b)

Payment delays: It is the degree of punctuality with which government and private importers pay their foreign creditors, based on government policies, domestic economic conditions, and international financial conditions. (The PRS Group, 2008b)

Fiscal and monetary expansion: It involves the assessment of a country's fiscal and monetary policies that whether policies applied can generate business climate or may lead to economic disorder. (The PRS Group, 2008b)

Labor policies: They are government policies, trade union activity, and productivity of labor force that affect the cost for business. (The PRS Group, 2008b)

Foreign debt: It involves the level of all foreign debt relative to the size of the economy and the ability of the country's public and private institutions to repay debt service obligations in due time. (The PRS Group, 2008b)

Since Turmoil is included in both the eighteen-month and five-year forecasts, four additional risk factors are analyzed from a five-year forecast perspective. These are:

Investment restrictions: It is the current base and likely changes in the general climate for restricting foreign investments. (The PRS Group, 2008b)

Trade restrictions: It is the current base and the likely changes in the general climate for restricting the entry of foreign trade. (The PRS Group, 2008b)

Domestic economic problems: It involves the ranking of the country according to its most recent five-year performance record in per capita GDP, GDP growth, inflation, unemployment, capital investment, and budget balance. (The PRS Group, 2008b)

International economic problems: It involves the ranking of the country according to its most recent five-year performance record in current account (as a

percentage of GDP), the ratio of debt service to exports, and the annual percentage change in the value of the currency. (The PRS Group, 2008b)

In summary, the 17 factors described above are used for risk ratings. First, the current risk level of each factor is estimated and, then, the change in its risk level under each of the three most likely regime scenarios is forecasted. Finally, the numerical equivalents of these current and forecast levels are used to calculate the risk scores. (The PRS Group, 2008b)

In order to assign rate for the risk related to each of three investment areas, namely, financial transfers risk, direct investment risk and export market risk, PRS focuses on preselected number of relevant criteria. (The PRS Group, 2008b)

Financial transfer risk ratings: Its 18-months rating is determined on the basis of equally weighed four factors: repatriation restrictions, payment delays, policy related to fiscal and monetary expansion, governmental foreign debt. Five-year rating is computed according to equally weighed three factors: the average score obtained from the 18-month computations, the level of turmoil forecast for the 18-month period and the level forecast under the three most probable five-year regime scenarios, the average rank of the country on the indicators of international financial problems and the forecasts of change under the three most probable regime scenarios. (The PRS Group, 2008b)

Direct investment risk ratings: Its 18-month rating is determined on the average of seven factors: turmoil, equity restrictions, restrictions on local operations, taxation discrimination, repatriation restrictions, exchange controls, labor costs. Five-year rating is given based on the average of four factors: the average score obtained

from the 18-month computations, the level of turmoil forecast for the 18-month period and the level forecast under the three most probable five-year regime scenarios, the relative strength of forces supporting and opposing restrictions on international investment and the forecasts of change under the three most probable five-year regime scenarios, the average rank of the country on indicators of domestic economic problems and the forecasts of change under the three most probable five-year regime scenarios. (The PRS Group, 2008b)

Export market risk ratings: Its 18-months rating is built on equally weighed six factors: turmoil, exchange controls, tariffs, other trade barriers, payment delays, foreign debt. Five-year rating is built on equally weighed five factors: the average score obtained from the 18-month computations, The level of turmoil forecast for the 18-month period and the level forecast under the three most probable five-year regime scenarios, The relative strength of forces supporting and opposing restrictions on trade and the forecasts of change under the three most probable five-year regime scenarios, The average rank of the country on indicators of domestic economic problems and the forecasts of change under the three most probable five-year regime scenarios, the average rank of the country on indicators of international economic problems and the forecasts of change under the three most probable five-year regime scenarios. (The PRS Group, 2008b)

PRS uses 17 risk factors previously defined to rate each of three risk categories. For each variable, how its degree of risk will be modified by the regime under consideration is forecasted. This change is quantified according to the following rule: - 1.0 (less risk), - 0.5 (slightly less) risk, 0 (same risk), + 0.5 (slightly more risk), + 1 (more risk), + 2 (much more risk). These numbers are weighted by the probability

of occurrence of the regime in question and then added to the base level of risk. Finally, each risk type is lettered with one of the 12 categories ranging from D- (most risky), D, D+,..., A-, A, A+ (least risky). (The PRS Group, 2008b)

Business Environment Risk Intelligence S.A. (BERI), whose clients are mostly banks and companies conducting international business, was founded in 1966. BERI is a private source for comprehensive ratings, analyses, and forecasts for over 140 countries. It has two permanent panels of experts that provide country ratings and qualitative observations. One panel judges political conditions in countries, and the other offers perspective on the operating environment. As a result of BERI policy, names of its analysts, clients, or panel members are not revealed in order to retain objectivity in the analyses and forecasts. (Beri, 2008)

BERI provide four types of ratings, namely, the Political Risk Index (PRI), the Operations Risk Index (ORI), the Remittance and Repatriation Factor (R factor), and Composite Score which is the combination of the other three. For each kind of risk ratings, current situation, one-year and five-year forecast are assessed. Bouchet et al. (2003:80) point out that the PRI and ORI originate from a Delphi method, which aims at facilitating the formation of a group judgment through a well-structured and controlled process.

The Political Risk Index assesses the social and political environment of a country. It is based on the perception and scores provided by 100 specialists with a political science background. These experts are asked to score 10 socio-political variables divided among three categories: internal causes, external causes and symptoms.

“Internal causes of political risk:

- *Fractionalization of political spectrum and the power of these factions.*
- *Mentality, including xenophobia, nationalism, corruption, nepotism, willingness to compromise.*
- *Fractionalization by language, ethnic and/or religious groups and the power of these factions.*
- *Social conditions, including population density and wealth distribution.*
- *Restrictive (coercive) measures required to retain power.*
- *Organization and strength of forces for a radical government.*

External causes of political risk:

- *Dependence on and/or importance to a major hostile power.*
- *Negative influences of regional political forces.*

Symptoms of political risk:

- *Societal conflict involving demonstrations strikes and street violence.*
- *Instability as perceived by non-constitutional changes, assassinations and guerilla wars.” (Bouchet et al., 2003, p.80)*

The specialists rate each variable from zero standing for highest risk to seven points representing lowest risk. Thus, the score from the variable above ranges from zero to 70 points, and up to 30 points is left for bonus. Consequently, the total score

have a range of zero to 100. According to the points the country of interest receives, it may fall into the following four categories: prohibitive risk for 0 to 39 points, high risk for 40 to 54 points, moderate risk 55 to 69 points and low risk for 70 to 100 points. PRI's one-year and five-year forecasts are obtained by asking experts their perceptions on the business climate and then these opinions are averaged excluding the outliers. Bouchet et al. (2003:80-81)

The Operations Risk Index is aimed to assess the general business climate. Similar to PRI, it is derived from another panel of 100 specialists with global practice. It scores the degree of hospitality of a country and its treatments for foreign investment. This index take into account both economic and regulatory environments, and also tries to guess any possible discrimination against foreign business. It considers fifteen criteria taking points between zero representing unacceptable conditions and four points standing for superior conditions. Criteria assigned various weights so that the total ORI ranges from zero to 100, with same kind of categorization of PRI. Moreover, ORI's one-year and five-year forecasts are obtained in the same way as for the PRI. Bouchet et al. (2003:81)

The fifteen criteria the ORI index uses are as the following: *“Policy continuity, Economic growth, Currency convertibility, Labor costs/productivity, Short-term credit, Long-term loans and venture capital, Enforceability of contracts, Attitude toward foreign investors and profits, Degree of privatization, Monetary inflation, Balance of payments, Communications and transportation, Local management and partners, Bureaucratic delays, Professional services and contracts.”* (Bouchet et al., 2003, p.81)

The Remittance and Repatriation Factor involved in the issue of repatriation and convertibility in a foreign currency. *“Contrary to the two previous indices, the R*

factor does not solely rely on expert judgments. It is essentially “produced by a large computer program that manipulates over 14 000 cells of data and makes hundred of calculations”, as stipulated mysteriously on BERI’s information web page (BERI, 2001b). It estimates a country’s ability and willingness to implement and maintain a fully convertible currency system so that foreign firms may freely repatriate profit and capital in any currency and also import any goods paid in a foreign currency. The R factor is computed from four sub-indices: legal framework (20% of the R factor), foreign exchange generation (30%), accumulated international reserves (30%), and foreign debt assessment (20%). The results are grouped with the same categories as for PRI and ORI”. (Bouchet et al., 2003, p.81)

The Combined Score of BERI is equally weighed average of the PRI, ORI, and R factor. The goal of this score is to provide “*an overall assessment of the country’s riskiness through a Profit Opportunity Recommendation (POR) that differentiates countries between “No Business Transactions”, “Trade Only”, “Non-dividend Cash Flow”, and “Investment Quality”.*” (Bouchet et al., 2003, p.81)

Economist Intelligence Unit (EIU) is one of the world’s most foremost providers of country analysis. EUI provides a comparative summary of ratings for emerging countries monitored by the Country Risk Service (CRS). The CRS risk rating methodology examines two different type of risk: country risk and specific investment risk. Bouchet et al. (2003:88) affirms that country risk is determined by political, economic policy, economic structure, and liquidity factors with weights of 22%, 28%, 27%, and 23% respectively.

EUI defines three different types of specific investment risk. These are currency risk which is associated with accepting foreign exchange exposure against the

US dollar, sovereign debt risk which is associated with foreign currency loans to sovereign states, and banking sector risk which is associated with foreign currency loans to banks. *“These specific investment risk ratings are also determined by the same four factors, with different weights. For currency risk, economic policy is the most heavily weighted factor at 65%, with economic structure, political, and liquidity factors having weights of 17%, 14%, and 4%, respectively. In the case of sovereign debt risk, liquidity has the highest weight at 31%, with economic policy and economic structure each being weighted at 27%, and the political factor at 15%. Finally, for banking sector risk, economic structure is the most heavily weighted at 44%, with economic policy, liquidity, and political factors weighted at 35%, 15%, and 6%, respectively.” (Hoti and McAleer, 2004, p.pages, 555-556).*

In the light of the discussion we have made so far, it can be said that each rating entities employ different models built on the combination of qualitative and quantitative factors and variables entering into their model have various weight based on their perceived importance. Due to the fact that each entity employs different rating scales, figures, and various rating publishing frequency direct comparison with each other is very hard. However, it can be argued that each rating entity would probably draw more or less the same picture for the country in question.

3 Quantitative Analysis

Regarding the discussion we have made in country risk assessment methodologies section of the thesis, we know that quantitative based approaches to measure country risk are discriminant analysis, logit/probit models, cluster techniques and hybrid neural networks. In this thesis, a logit model in order to explain debt rescheduling behavior of developing countries will be employed.

3.1 The Model

The first study using logit approach to estimate debt servicing capacity of countries was suggested by Feder and Just (1977). In this study, an application of a similar model with various economic and financial indicators for the period of 1980 and 2004 will be analyzed.

The general representation of the model is:

$$[3.1] \quad y_{it} = \alpha + X'_{it} \beta + u_{it}$$

where

$$[3.1.1] \quad u_{it} = \mu_i + \nu_t \quad \text{for } i = 1 \dots N; t = 1 \dots T$$

with i representing countries and t representing time. Hence, i subscript represent the cross-section dimension while t represent time-series dimension. α is scalar, β is $K \times 1$ and X_{it} is the it^{th} observation on K explanatory variables. As it

is clear from the representation above, the error term has two components. Of this, μ_i stands for the unobservable individual specific effect and ν_{it} represents the remainder disturbance. (Baltagi, 2005:11).

The dependent variable is the probability of debt rescheduling in the model that will be employed. Since the sample data of the dependent variable includes only occurrence or nonoccurrence of debt rescheduling for the country in question at a particular year t , it is a binary value. The value of 1 will be assigned to the related observation in the sample if country rescheduled its debt at year t and, otherwise, the value of 0 will be assigned.

Thus,

$$[3.1.2] \quad y_{it} = 1, \text{ if the country of interest rescheduled debt at year } t.$$

$$= 0, \text{ if the country of interest did not reschedule debt at year } t.$$

3.2 Data

The data employed in this study can be classified into two parts. One is about debt rescheduling of countries analyzed and the other is related to economic and financial indicators.

Debt rescheduling data is obtained from Paris Club², which is an informal organization providing financial services such as debt restructuring, debt relief, and debt cancellation to indebted countries and their creditors, since it is the only source of data

² <http://www.clubdeparis.org>

we have about debt service obligations of the countries interested in. Paris Club³ classifies debt rescheduling of countries based on pre-determined categories, defined according to treatments agreed on with all creditor countries as “Classic terms”, “Houston terms”, “Naples terms”, “Cologne terms”, “Toronto terms”, “London terms”, and “Lyon terms”.

Classic terms⁴ are defined as standard terms and any country having a suitable program with the IMF becomes eligible to be classified in this category. Houston terms⁵ are described for highly-indebted lower-middle-income countries. A debtor country becomes eligible for this category if at least two of the following criteria are met: “ (i) low level of income (GDP per capita smaller than \$2995), (ii) high indebtedness (defined as reaching at least two of the following three criteria: debt to GDP higher than 50%, debt to exports higher than 275%, scheduled debt service over exports higher than 30%); (iii) have a stock of official bilateral debt of at least 150% of private debt.”

Naples terms⁶ are defined for highly-indebted poor countries. Eligibility for this category is determined case by case based on history of the country with the Paris Club, the IMF and various criteria, “including having a high level of indebtedness, being only eligible for IDA financing from the World Bank, and having a low GDP-per-

³ All information is gathered from <http://www.clubdeparis.org/sections/termes-de-traitement/termes-de-traitements> (accessed 06 June 2008)

⁴ All information is gathered from <http://www.clubdeparis.org/sections/termes-de-traitement/termes-de-traitements/59-les-termes-classiques/switchLanguage/en> (accessed 06 June 2008)

⁵ All information including direct quotes is gathered from <http://www.clubdeparis.org/sections/termes-de-traitement/termes-de-traitements/60-les-termes-de-houston/switchLanguage/en> (accessed 06 June 2008)

⁶ All information including direct quotes is gathered from <http://www.clubdeparis.org/sections/termes-de-traitement/termes-de-traitements/61-les-termes-de-naples/switchLanguage/en> (accessed 06 June 2008)

capita (755 \$ or less).” Cologne terms⁷ are set for Heavily Indebted Poor Countries (HIPC). In order to be categorized in this group, a country must be eligible to Naples terms and must meet the followings: “(i) have a sound track record with the Paris Club and continuing strong economic adjustment; (ii) have been declared eligible to the enhanced HIPC Initiative by the boards of the IMF and the World Bank.” Remaining three categories had been previously described treatments of the Paris Club. Of these, Lyon terms are replaced by Cologne terms, and, Toronto terms and London terms are replaced by Naples terms.

The data of economic and financial indicators, which are selected according to theoretical justification, used in this study are obtained from World Bank (2007) statistics releases. The data of economic indicators consist of external balance on goods and services as a percentage of GDP, net inflows of foreign direct investment as a percentage of GDP, gross domestic savings as a percentage of GDP and GDP per capita growth and the data of financial indicators include the ratio of debt service payments to exports of goods and services, the ratio of reserves to total debt, the ratio of short-term debt to total debt and the ratio of total debt to GNP.

3.2.1 Selection Criteria

In this study, three criteria are employed to choose countries of the model and the criteria for economic and financial indicators selection are based on Alexe et al. (2004).

Let us first discuss the criteria employed to choose countries of the model. First criterion involves debt rescheduling frequency of countries, second one is availability of

⁷ All information including direct quotes is gathered from <http://www.clubdeparis.org/sections/termes-de-traitement/termes-de-traitements/62-les-termes-de-cologne/switchLanguage/en> (accessed 07 June 2008)

data regarding economic and financial indicators and, finally, countries must be low and middle income economies based on the World Bank classification.

Since the period of 1980 and 2004 is investigated, *the countries rescheduled at least once* in this period will be concerned. There appear eighty one countries meeting the first criterion based on Paris Club releases. It is crucial to recognize that this criterion enables taking into account the countries rescheduled only once together with the countries rescheduled many times. Hence, countries providing different information based on their debt rescheduling frequencies can be employed in the model.

Second criterion for selection is *availability of the data* regarding economic and financial indicators that will be used in the model. Out of eighty one countries meeting the first condition, thirty countries have been selected based on data gap matrix, which is constructed by collecting data for each indicator. In the data gap matrix, the countries that have no missing data are determined under the constraint of economic and financial indicators that can be employed.

Third criterion for selection of countries is that countries *must be low and middle income economies* based on the World Bank classification. Hence, twenty-nine countries have become eligible for analysis among the thirty countries meeting the second condition. In the World Bank list of economies⁸ table, countries are grouped into four categories, based on their gross national income (GNI) per capita, as low income, 905\$ or less, lower middle income, 906\$-3,595\$, upper middle income, 3,596\$-11,115\$, and high income, 11,116\$ or more. Thus, in this study, only high income countries meeting the first two criteria are excluded.

⁸All information is gathered from <http://siteresources.worldbank.org/DATASTATISTICS/Resources/CLASS.XLS>(accessed 07 June 2008)

First criterion in selection of economic and financial indicators is *the significance of variables* to explain debt rescheduling behavior of developing countries. For this aim, an extensive literature review on country risk has been done. Hence, most of the variables used in the model can be found in the earlier studies, but not all of them in one study. Selection among many economic and financial indicators is done by the help of data gap matrix where optimal combination of countries and significant variables is determined facing constraints of the countries that can be studied based on country selection criteria.

Second criterion is *the availability of the data*. Since there is twenty five (25) years in the period analyzed, for each variable, no missing data are tolerated. This is done in order to avoid difficulties in the missing data. The reason for tolerating no missing data is that information loss arising from missing data might reduce statistical significance.

The last criterion is *the uniformity of data* across countries. Each variable should have same definition in all countries. The World Bank, for example, point out that unemployment data are collected according to definitions that differ from country to country.

3.2.2 Variables of the Model

Having talked about country and variable selection criteria, let us first present the definition and source of variables employed with their original representations in the

data source before discussing how selected variables might affect the dependent variable and illustrate country risk studies⁹ where the variables utilized.

Table 3.1: Definition and Sources of the Variables Used in the Model

Variable	Definition	Source
Y	Debt Rescheduling	Paris Club
DSP	Debt service (TDS)/Exports of goods and services (XGS) (%)	GDF
RES_TD	Reserves (RES)/Total debt (EDT) (%)	GDF
SD_TD	Short-term debt/Total debt (EDT) (%)	GDF
TD_GNP	Total debt (EDT)/GNP (%)	GDF
EB	External balance on goods and services (% of GDP)	WDI
FDI	Foreign direct investment, net inflows (% of GDP)	WDI
GDS	Gross domestic savings (% of GDP)	WDI
GDP	GDP per capita growth (annual %)	WDI

The first one is *the ratio of debt service payment to exports of goods and services*. It shows the relation between fixed foreign exchange outflows arising from external debt obligations and the fundamental foreign exchange inflows generated by exports. A decrease in exports may lead to a reduction in reserves or imports to fulfill debt service payments. Hence, a rise in the ratio will increase the probability of debt rescheduling. This variable is used in Aylward and Thorne (1998), Edward (1983), Eichengreen and Mody (1999), Feder et al. (1981).

The second one is *the ratio of reserves to total debt*. This ratio shows the ability of government to meet its external debt obligations in the short-run. If the export revenue shrinks, the government may decide to use reserves to pay debt obligations. The higher is the value of this ratio; the lower will be the risk of default. This indicator is used in Eichengreen and Mody (1999) and Hu et al. (2002).

⁹ Depending on authors ,exact or close definitions of the selected varibales are used in the studies presented.

The third one is *the ratio of short-term debt to total debt*, which is used in Monfort and Mulder (2000). It represents the portion of the total debt that would be met in the short-run. If this ratio is high, then higher portion of the total debt must be paid in the short run, hence, higher is the risk of default on obligations.

The fourth one is *the ratio of total debt to GNP*. This ratio shows how heavily the country is indebted. Higher the ratio, higher the indebtedness, and hence higher is the risk. This is studied in Aylward and Thorne (1998), Brewer and Rivoli (1990), Easton and Rookerbie (1999), Edward (1983), Eichengreen and Mody (1999), Haque et al. (1998), Hu et al. (2002), Larrain et al. (1997), Lee (1993b), Monfort and Mulder (2000).

The fifth one is *external balance on goods and services as a percentage of GDP*. External balance is defined as the difference between exports and imports (exports-imports). This ratio shows net foreign inflows on goods and services as a percent of capacity of the economy. Thus, an increase in this ratio will decrease the risk. This is used in Brewer and Rivoli (1990), Cosset et al. (1992), Doumpos and Zopounidis (2001), Edward (1983), Haque et al. (1998), Larrain et al. (1997), Monfort and Mulder (2000).

The sixth one is *net inflows of foreign direct investment as a percentage of GDP*. Foreign direct investment (FDI) is a clear indicator of the globalization. FDI, in general, comes in the form of physical or financial assets which increase the productive capacity of a nation. Therefore, higher is this ratio, lower is the risk. This is used in Doumpos and Zopounidis (2001), Easton and Rookerbie (1999), Edward (1983), Monfort and Mulder (2000).

The seventh one is *gross domestic savings as a percentage of GDP*. Gross domestic savings are calculated as the difference between GDP and total consumption in WDI. An increase in saving is expected to cause a rise in economic growth. Thus, an increase in this ratio will decrease risk. This is studied in Larrain et al. (1997), Monfort and Mulder (2000).

The eight one is *GDP per capita growth*. Although this ratio is not directly related to balance of payments, it can be helpful ratio since it shows income growth. If the income is high, the management of liquidity crisis would be easier. Thus, an increase in this ratio will reduce risk. This indicator is used in Aylward and Thorne (1998), Lee (1993a, b), Haque et al. (1996).

3.3 Estimation Results

Let us first present descriptive statistics of variables employed in the model.

Table 3.2: Descriptive Statistics

Variable	Observation	Mean	St.Dev.	Min.	Max.
Y	725	0.218	0.413	0	1
DSP	725	23.112	14.687	0	118
RES_TD	725	15.262	14.753	0	119
SD_TD	725	12.868	8.085	0	46
TD_GNP	725	82.928	51.710	15	487
EB	725	-4.503	10.172	-58	37
FDI	725	1.510	2.640	-29	23
GDS	725	15.204	11.647	-49	61
GDP	725	0.317	5.158	-47	37

In the table above, basic statistics for variables of interest are listed. Mean represents arithmetic average of the related variables for the period analyzed. Standard deviation, which is shown as “St.Dev.”, measures dispersion around the mean. “Min.” and “Max.” shows respectively the minimum and the maximum value of each variable.

Before running the model with selected variables, it is crucial to check whether the variable of interest is stationary or not. In order to decide about the stationary of the variables, Levin, Lin, Chu panel unit root test, in which the null hypothesis is the presence of unit root in each individual panel time series against the alternative that each panel time series is stationary, will be conducted with fixed effects and fixed effects with trend specifications. (Baltagi, 2005:240).

Table 3.3: Panel Unit Root Test

Variable	Fixed Effects		Fixed Effects with Trend	
	Test Statistics	Prob	Test Statistics	Prob
Y	-8.15621*	0.000	-7.82741*	0.000
DSP	-3.01568*	0.001	-3.13731*	0.001
RES_TD	2.51374	0.994	0.061703	0.731
SD_TD	-2.46407*	0.007	-2.72039*	0.003
TD_GNP	-2.91331*	0.002	-1.51762***	0.065
EB	-4.1592*	0.000	-3.91113*	0.000
FDI	-3.28999*	0.001	-3.74518*	0.000
GDS	-4.45724*	0.000	-2.96881*	0.002
GDP	-9.15069*	0.000	-7.29919*	0.000

*=Significant at 1% level.

**=Significant at 5% level.

***=Significant at 10% level.

Based on the results above; the ratio of reserves to total debt has a unit root under both specifications since the probability of test statistics of the relevant variable is insignificant at 10% level and ratio of total debt to GNP has a unit root under the fixed effect with trend specification due to the fact that the probability of test statistics of variable of interest is insignificant at 5 % level. Hence, both variables can be regarded as non-stationary since we fail to reject the null hypothesis of presence of unit root for the variables of interest.

Keeping in mind the fact that, among the selected economic and financial indicators, the ratio of reserves to total debt and ratio of total debt to GNP are non-stationary, let us run the regression with dependent variable and explanatory variables individually in order to decide significance of the variables in the model.

Table 3.4: All Variables Individually

Estimation Period : 1980-2004				Estimation Frequency : Yearly			
Variable		Sign		Fixed		Random	
Dependent	Explanatory	Expected	Estimated	Coef.	Prob.	Coef.	Prob.
Y	DSP	+	+	0.0223779*	0.004	0.0205412*	0.003
	RES_TD	-	-	-0.0336578*	0.003	-0.0412617*	0.000
	SD_TD	+	-	-0.0769935*	0.000	-0.081661*	0.000
	TD_GNP	+	+	0.0110575*	0.000	0.0100954*	0.000
	EB	-	+	0.01915	0.194	0.01247	0.284
	FDI	-	-	-0.09744**	0.023	-0.0984696*	0.017
	GDS	-	+ / -	0.003301**	0.085	-0.00260	0.809
	GDP	-	-	-0.00254	0.891	-0.01080	0.553

*=Significant at 1% level.

**=Significant at 5% level.

***=Significant at 10% level.

The table above summarizes the results of the regressions when all variables are run individually. Both fixed and random effect specification of the panel regressions are listed together. To choose between the model with fixed effect which has consistent parameters and the one with random effect which has efficient parameters in the long-run, Hausman test is conducted. If the probability of Hausman test is insignificant, which means it is above 0.05, then it is safe to use random effect model. (Baltagi, 2005:70).

Fixed effects model assumes intercepts are fixed. For this reason, it is limited and individual specific components cannot be captured in this approach. In the random effects model, cross-sectional units in the sample are considered as random draws from the same distribution and hence it captures individual specific components.

The ratio of debt service payments to exports of goods and services (DSP) is significant under both fixed and random effect models at 1% level of significance. It is important to recognize that the sign of the coefficient of the DSP is positive which is expected as a priori. That is the higher the debt service payment, the higher is the probability of debt rescheduling.

The ratio of reserves to total debt (RES_TD) is significant under both fixed and random effect models at 1% level of significance and its sign is consistent with priori expectation. However, this variable cannot be used in the model due to the fact that it is non-stationary.

The ratio of short-term debt to total debt (SD_TD) is significant under both fixed and random effect models at 1% level of significance but its sign is inconsistent with priori expectation. Regarding the literature surveys, its sign is expected to be positive. That is, high ratio of short-term debt to total debt increases the probability of debt rescheduling. However, from another point of view, one can argue that higher is the short-term debt, higher will be the pressure on governments to rollover their debts. This will eventually lead to paying higher interest rate to compensate the risk premium perceived by the creditors.

The ratio of total debt to GNP (TD_GNP) is the same as the ratio of reserves to total debt. It is significant under both fixed and random effect models at 1% level of significance and its sign is consistent with priori expectation. But, this variable cannot be used in the model since it is non-stationary.

External balance on goods and services as a percentage of GDP (EB) is insignificant under both fixed and random effect models at 10% level of significance

and its sign is inconsistent with priori expectation. Since this variable individually cannot explain the debt rescheduling, it will not be used in the model.

Net inflows of foreign direct investment as a percentage of GDP (FDI) is significant under both fixed and random effect models at 1% level of significance and its sign is consistent with priori expectation. It is commonly known that foreign direct investment is a clear indication of the globalization. Generally, FDI comes in the form of physical or financial assets which increase the productive capacity of a nation. Thus, higher the level of foreign direct investment, lower will be the probability of debt rescheduling.

Gross domestic savings as a percentage of GDP (GDS) is insignificant under both fixed and random effect models at 10% level of significance and its sign is inconsistent with priori expectation in fixed effects model but consistent with priori expectation in random effects model. This variable will not be used in the model because of the fact that it cannot explain the debt rescheduling individually.

GDP per capita growth (GDP) is insignificant under both fixed and random effect models at 10% level of significance but its sign is consistent with priori expectation. However, this variable will not be used in the model since it cannot explain the debt rescheduling individually.

With descriptive aim, let us assume all variable are stationary and run the model with all the variables chosen based on theoretical justification.

Table 3.5: All Variables Together

Estimation Period : 1980-2004				Estimation Frequency : Yearly			
Variable		Sign		Fixed		Random	
Dependent	Explanatory	Expected	Estimated	Coef.	Prob.	Coef.	Prob.
Y	DSP	+	+	0.01205	0.153	0.00954	0.181
	RES_TD	-	-	-0.01538	0.233	-0.0186102***	0.093
	SD_TD	+	-	-0.0760529*	0.000	-0.0756062*	0.000
	TD_GNP	+	+	0.008424*	0.005	0.0071558*	0.000
	EB	-	+	0.00985	0.675	0.01007	0.598
	FDI	-	-	-0.06265	0.170	-0.06442	0.132
	GDS	-	-	-0.00575	0.813	-0.00436	0.800
	GDP	-	+	0.00692	0.723	0.00140	0.941
	CONS		-			-0.8853012***	0.077

*=Significant at 1% level.

**=Significant at 5% level.

***=Significant at 10% level.

If all variables were to be stationary, the result of the regression model including all of these indicators would be as the one shown above. In the fixed effects model, only the ratio of short-term debt to total debt and the ratio of total debt to GNP would be significant in explaining debt rescheduling at 1% level. In addition to these variables, in the random effects model, the ratio of reserves to total debt would also be significant in explaining debt rescheduling at 10% level.

Even though this model is not applicable due to the fact that all the variables used have not integrated of order zero, it might make sense to recognize that the sign of the ratio of short-term debt to total debt is actually negative under both fixed and random effects models.

Now, let us get rid of the variables that are non-stationary and run the panel regression model with the remaining variables.

Table 3.6: All Stationary Variables Together

Estimation Period : 1980-2004				Estimation Frequency : Yearly			
Variable		Sign		Fixed		Random	
Dependent	Explanatory	Expected	Estimated	Coef.	Prob.	Coef.	Prob.
Y	DSP	+	+	0.0185794**	0.022	0.0154838**	0.028
	SD_TD	+	-	-0.0730954*	0.000	-0.0797265*	0.000
	EB	-	+	0.01197	0.593	0.01131	0.565
	FDI	-	-	-0.0822296***	0.073	-0.079029***	0.070
	GDS	-	-/+	0.00542	0.818	0.00075	0.966
	GDP	-	+	0.00256	0.898	-0.01164	0.548
	CONS		-			-0.65186	0.121

*=Significant at 1% level.

**=Significant at 5% level.

***=Significant at 10% level.

Considering both fixed and random effects model, the ratio of debt service payments to exports of goods and services is significant in explaining debt rescheduling behavior of developing countries at 5 % level and its sign is consistent with priori expectations. Similarly, net inflows of foreign direct investment as a percentage of GDP is significant in explaining debt rescheduling at 10 % level and its sign is consistent with priori expectations under both fixed and random effects model.

The ratio of short-term debt to total debt is highly significant regarding both fixed and random effects model but its sign is inconsistent with priori expectations.

It is crucial to point out that the variables significantly explaining debt rescheduling when all stationary variables included into the panel regression is the same as the ones found by running the regression model for all indicators individually.

In the light of the analysis done so far, three indicators, namely, the ratio of debt service payments to exports of goods and services, net inflows of foreign direct investment as a percentage of GDP, and the ratio of short-term debt to total debt can be employed in order to construct models.

Table 3.7: Model

Estimation Period : 1980-2004			Estimation Frequency : Yearly		
Variable		Sign		Coef.	Prob.
Dependent	Explanatory	Expected	Estimated		
Y	DSP	+	+	0.015794**	0.022
	SD_TD	+	-	-0.0778636*	0.000
	FDI	-	-	-0.0875016**	0.073
	CONS		-	-0.7117045**	0.017
Wald chi2(2) = 32.17			Prob > chi2 = 0.000		
Observations = 725			Pseudo R2 = 0.0521		

*=Significant at 1% level.

**=Significant at 5% level.

***=Significant at 10% level.

First model includes all of the three variables that are discovered to explain significantly debt rescheduling behavior of developing countries. As it is clear from the regression output above, all the variables are significant. As it is found in all the analysis made until now, the sign of ratio of short-term debt to total debt (SD_TD) is actually negative and is highly significant. Thus, according to sample analyzed, as the ratio of short-term debt to total debt increases, the probability of debt rescheduling decreases.

For other variables, namely, net inflows of foreign direct investment as a percentage of GDP (FDI) and the ratio of debt service payments to exports of goods and services (DSP), the sign of their coefficients are consistent with priori expectations and are both significant at 5% level. Hence, an increase in DSP or a decrease in FDI would lead to a rise in likelihood of debt rescheduling and a decline in DSP or a rise in FDI would reduce the probability of debt rescheduling.

The chi2 statistics of Wald test is analogous to F-test statistics in an Ordinary Least Squares (OLS) regression. Thus, it tests the overall significance of the model. Since its probability is smaller than 0.01, the model above is highly significant.

R-square (goodness of fit) measures how much of the variation in dependent variable is explained by the explanatory variables in an OLS regression. However, it is very important to be aware of the fact that if the dependent variable is binary value, then, it will exhibit no variation rather than taking the values of 0 and 1. Hence, one should interpret the value of R-square carefully when the dependent variable is binary value. *“For example, a researcher estimating macroeconomic OLS regressions using data from different countries might expect R2’s in the .8 or .9 range. If one of any country regressions has an R2 of .4, this is a sign of special attention is required; there may even be an error. However in a different situation, practitioners using microdata on labour supply may expect R2 of around .1. A regression with an R2 of .02 might require further scrutiny while an R2 of .4 would be suspiciously large.”* (Veall and Zimmermann, 1996, p.3)

Under the model constructed and the panel regression models run until now, we have encountered that the ratio of short-term debt to total debt (SD_TD) is highly significant and its sign is actually negative contradicting with expectations. Thus, an increase in the ratio of short-term debt to total debt leads to a decline in the probability of debt rescheduling.

Simply, it can be discussed that a rise in this ratio can arise either from an increase in the volume of short-term debt when long-term debt of the country analyzed remained constant or, generally, a higher growth in the volume of short-term debt relative to long-term debt of the country considered.

In order to discover the reason for negative sign of short-term debt to total debt and compare the information provided the variables of the model, let us construct alternative models using the variables significantly explaining debt rescheduling behavior of developing countries.

Table 3.8: Alternative Model 1

Estimation Period : 1980-2004			Estimation Frequency : Yearly		
Variable		Sign		Coef.	Prob.
Dependent	Explanatory	Expected	Estimated		
Y	SD_TD	+	-	-0.0800438*	0.000
	FDI	-	-	-0.0954533**	0.026
	CONS		-	-0.28890	0.204
Wald chi2(2) = 28.19			Prob > chi2 = 0.000		
Observations = 725			Pseudo R2 = 0.0454		

*=Significant at 1% level.

**=Significant at 5% level.

***=Significant at 10% level.

Based on the alternative model 1, the ratio of short-term debt to total debt (SD_TD) is highly significant and its sign is actually negative. The second explanatory variable of Net inflows of foreign direct investment as a percentage of GDP (FDI) is significant at 5 % level and its sign is actually negative. Excluding the ratio of debt service payments to exports of goods and services (DSP) reduces the value of R-square slightly which is expected due to the fact that an inclusion of a variable always lead to a rise in the value of R-square and an exclusion of a variable always reduces the value of R-square. Moreover, both variables provide same information under alternative model 1 as in the model constructed to explain debt rescheduling behavior of developing countries.

Consequently, a decline (rise) in the ratio of short-term debt to total debt or a decline (rise) in net inflows of foreign direct investment as a percentage of GDP would increase (decrease) the probability of debt rescheduling.

Table 3.9: Alternative Model 2

Estimation Period : 1980-2004		Estimation Frequency : Yearly			
Variable		Sign		Coef.	Prob.
Dependent	Explanatory	Expected	Estimated		
Y	DSP	+	+	0.0172652**	0.014
	SD_TD	+	-	-0.0789791*	0.000
	CONS		-	-0.8561397*	0.003
Wald chi2(2) = 28.96				Prob > chi2 = 0.000	
Observations = 725				Pseudo R2 = 0.0458	

*=Significant at 1% level.

**=Significant at 5% level.

***=Significant at 10% level.

As it is clear from the alternative model 2, the ratio of debt service payment to exports of goods and services (DSP) is significant at 5 % level and its sign is positive. The ratio of short-term debt to total debt is highly significant and its sign is negative. Excluding net inflows of foreign direct investment as a percentage of GDP (FDI) reduces the value of R-square slightly, and both variables provide same information under alternative model 2 as in the model constructed to explain debt rescheduling behavior of developing countries.

Hence, an increase (decrease) in the ratio of short-term debt to total debt would lead to a decline (rise) in the probability of debt rescheduling and a rise (decline) in the ratio of debt service payments to exports of goods and services would increase (decrease) the likelihood of debt rescheduling.

Table 3.10: Alternative Model 3

Estimation Period : 1980-2004			Estimation Frequency : Yearly		
Variable		Sign		Coef.	Prob.
Dependent	Explanatory	Expected	Estimated		
Y	DSP	+	+	0.0187015*	0.008
	FDI	-	-	-0.0873501**	0.004
	CONS		-	-1.70676*	0.000
Wald chi2(2) = 12.66				Prob > chi2 = 0.000	
Observations = 725				Pseudo R2 = 0.0184	

*=Significant at 1% level.

**=Significant at 5% level.

***=Significant at 10% level.

In the alternative model 3, all the coefficients are significant and their signs are consistent with priori expectations. Excluding the ratio of short-term debt to total debt (SD_TD) lead to a relatively high decline in the value of R-square compared to the model constructed to explain debt rescheduling behavior of developing countries. Thus, remembering the meaning of R-square in a limited dependent panel regression, it might be concluded that the variable of the ratio of short-term debt to total debt (SD_TD) have a significant effect on debt rescheduling behavior of developing countries. Additionally, both variables provide same information under alternative model 3 as in the one constructed to explain debt rescheduling behavior of developing countries.

As a consequence, an increase in the ratio of debt service payments to exports of goods and services or a decrease in net inflows of foreign direct investment as a percentage of GDP would lead to a rise in likelihood of debt rescheduling and a decline in the ratio of debt service payments to exports of goods and services or a rise in net inflows of foreign direct investment as a percentage of GDP would reduce the probability of debt rescheduling.

In order to test whether the debt rescheduling behavior of countries is region specific or not, regional dummies will be introduced to the model and alternative models constructed above.

Table 3.11: Model with Regional Dummies

Estimation Period : 1980-2004			Estimation Frequency : Yearly		
Variable		Sign		Coef.	Prob.
Dependent	Explanatory	Expected	Estimated		
Y	DSP	+	+	0.0150835**	0.043
	SD_TD	+	-	-0.0744117*	0.000
	FDI	-	-	-0.0814312***	0.066
	D1		-	-0.47936	0.401
	D2		-	-0.11486	0.767
	D3		-	-0.04509	0.194
	D4		+	0.20413	0.779
	CONS		-	-0.5971788**	0.048
Wald chi2(2) = 34.09				Prob > chi2 = 0.000	
Observations = 725				Pseudo R2 = 0.0552	

*=Significant at 1% level.

**=Significant at 5% level.

***=Significant at 10% level.

With introduction of regional dummies¹⁰, the sign of the variables do not change compared to the Model without dummies. As it is seen from the output above, only the dummy represented by constant is significant at 5 % level of significance. Explicitly, just the dynamics of the countries in Africa region has a significant effect on debt rescheduling.

It is crucial to consider the sign of the dummy variable in question. Its negative sign means that dynamics of developing countries in Africa region lead to a decline in the probability of debt rescheduling.

¹⁰ Of the regional dummies, D1 stands for Middle East, D2 represents South & North America & , D3 displays Central America & the Caribbean, D4 is introduced for Asia and, finally, CONS shows Africa.

Moreover, the model above is highly significant since the probability of chi2 statistics is smaller than 0.01 and its Pseudo R2 is slightly higher than the one without dummies which is expected due to the fact that introduction of new variables always lead to a rise in R-square.

Table 3.12: Alternative Model 1 with Regional Dummies

Estimation Period : 1980-2004		Estimation Frequency : Yearly			
Variable		Sign		Coef.	Prob.
Dependent	Explanatory	Expected	Estimated		
Y	SD_TD	+	-	-0.0775934*	0.000
	FDI	-	-	-0.0925812**	0.035
	D1		-	-0.44546	0.425
	D2		-	0.14355	0.686
	D3		-	-0.46359	0.170
	D4		+	0.23248	0.743
	CONS		-	-0.22062	0.343
Wald chi2(2) = 31.24				Prob > chi2 = 0.000	
Observations = 725				Pseudo R2 = 0.0497	

*=Significant at 1% level.

**=Significant at 5% level.

***=Significant at 10% level.

Similarly, the sign of the variables do not change compared to the Alternative Model 1 without dummies. Excluding the ratio of debt service payments to exports of goods and services (DSP) makes all the regional dummies insignificant. Additionally, the model above is highly significant since the probability of chi2 statistics is smaller than 0.01 and its Pseudo R2 is slightly higher than the Alternative Model 1 without dummies.

Consequently, under this model, there appear that debt rescheduling behavior of countries is independent from regional dynamics since none of the regional dummies is significant. In this study, *regional dynamics* can be interpreted as the effects on debt

rescheduling behavior of developing countries arising from regional disparities of the countries employed in the model.

Table 3.13: Alternative Model 2 with Regional Dummies

Estimation Period : 1980-2004		Estimation Frequency : Yearly			
Variable		Sign		Coef.	Prob.
Dependent	Explanatory	Expected	Estimated		
Y	DSP	+	+	0.017106**	0.020
	SD_TD	+	-	-0.0741284*	0.000
	D1		-	-0.50304	0.372
	D2		-	-0.26598	0.479
	D3		-	-0.53368	0.117
	D4		+	0.16043	0.823
	CONS		-	-0.7129697**	0.015
Wald chi2(2) = 31.74			Prob > chi2 = 0.000		
Observations = 725			Pseudo R2 = 0.050003		

*=Significant at 1% level.

**=Significant at 5% level.

***=Significant at 10% level.

As it is seen from the regression output above, the sign of the variables do not change compared to the Alternative Model 2 without dummies.

Similar to the Model with Regional Dummies, only the variable shown by CONS is significant under the Alternative Model 2. Namely, just the dummy represented by Africa is significant with negative sign. Consequently, dynamics of the countries in Africa lead to a decline in the probability of debt rescheduling.

Moreover, the model above is highly significant since the probability of chi2 statistics is smaller than 0.01 and its Pseudo R2 is slightly higher than the Alternative Model 2 without dummies.

Table 3.14: Alternative Model 3 with Regional Dummies

Estimation Period : 1980-2004			Estimation Frequency : Yearly		
Variable		Sign		Coef.	Prob.
Dependent	Explanatory	Expected	Estimated		
Y	DSP	+	+	0.018734*	0.010
	FDI	-	-	-0.0761378***	0.068
	D1		-	-0.87261	0.134
	D2		-	-0.48486	0.217
	D3		-	-0.7221485**	0.041
	D4		+	-0.41908	0.573
	CONS		-	-1.392493*	0.000
Wald chi2(2) = 18.36				Prob > chi2 = 0.000	
Observations = 725				Pseudo R2 = 0.02582	

*=Significant at 1% level.

**=Significant at 5% level.

***=Significant at 10% level.

Similarly, the sign of the variables do not change compared to the Alternative Model 3 without dummies. Excluding the ratio of short-term debt to total debt (SD_TD) has made both D3 and the dummy represented by constant significant. Therefore, dynamics of developing countries in Central America & the Caribbean and Africa regions have a significant effect on debt rescheduling behavior. Since, the signs of both dummies are negative; dynamics of developing countries in those regions reduce the probability of debt rescheduling.

Considering introduction of regional dummies into the model and alternative models constructed above, it is crucial to recognize that only models with the variable of the ratio of debt service payments to exports of goods and services display a relation with regional dynamics and debt rescheduling behavior of developing countries. Hence, empirically, it can be inferred that the ratio of debt service payments to exports of goods and services consists of region specific information.

From econometric point of view, it is important to note that there are fourteen countries in Africa region and seven countries in Central America & the Caribbean region over twenty nine developing countries in the sample analyzed. That is, the reason for the countries that are found to have insignificant effect with regional dynamics and debt rescheduling behavior might arise from the fact that they are represented by few countries in the sample.

4 Conclusion

In this thesis, after having talked about the concept of country risk and its assessment methodologies, special attention is paid to country risk ratings and in order to measure country risk a quantitative analysis is applied to developing countries.

First, literature review on definition of country risk and its components has been done. Country risk includes economic, financial and political risk components. As it is argued in country risk section of the thesis, country risk analysis has a history of a few decades and authors define country risk based on their perception regarding the three components. Most of them focus on economic and financial risk components whereas others consider political risk component.

Second, country risk assessment methodologies, which are qualitative approach, ratings and quantitative analysis, have been described in detail. As it is stated before, ratings and quantitative methods have received academic interest, and, in general, qualitative technique is preferred by practitioners when quantitative based methods cannot be applicable due to certain problems like lack of data.

Third, information about leading country risk rating firms and the most famous international financial magazines providing ratings to assess country risk has been given. Remembering the arguments made in country risk rating section of the thesis, it can be said that each rating agency employ various models, based on the combination of qualitative and quantitative factors, to evaluate country risk and variables employed have various perceptions in the models. Even though, comparison of ratings with each other is hard to conduct due to differences in rating scales and publishing frequency, it

can be argued that each rating entity would probably assign a rating figure providing more or less the same assessment for countries involved in.

Finally, a quantitative model of Feder and Just (1977) is applied to evaluate debt servicing capacity of countries. In this study, based on the logit model with theoretically justified economic and financial indicators, it is found that debt rescheduling behavior of developing countries is explained by the ratio of debt service payment to exports of goods and services (DSP) whose sign is positive, the ratio of short-term debt to total debt (SD_TD) which has negative sign and net inflows of foreign direct investment as a percentage of GDP (FDI) whose sign is positive. Hence, a rise in DSP (FDI) or a decline in SD_TD would increase the likelihood of debt rescheduling of developing countries and a shrink in DSP (FDI) or a rise in SD_TD would decrease the probability of debt rescheduling of developing countries.

It is crucial to be aware of negative sign of the ratio of short-term debt to total debt since it is inconsistent with priori expectations. It is expected that high ratio of short-term debt in total debt would make developing countries insolvent. However, high ratio of short-term debt in total debt would put pressure on governments in charge and, therefore, high interest rate would be offered in order to rollover debts.

With the introduction of regional dummies into the models, it is discovered that dynamics of developing countries in Central America & the Caribbean and Africa regions have a significant effect on debt rescheduling behavior. Due to the fact that the signs of regional dummies are negative in models, dynamics of the countries in those regions reduce the probability of debt rescheduling. Moreover, it is found that regional dummies are insignificant in the models without DSP and at least one of them is significant in all models with DSP. Consequently, it can be argued that the ratio of debt

service payments to exports of goods and services takes account of region specific information.

Appendices

Appendix 1

Economic and Financial variables used in studies on country risk are listed by authors and year of publication in the table below. This idea is acquired from Alexe et al. (2004).

Variable	Literature
Central government spending as a percentage of GDP	Larrain et al. (1997).
Commercial Inflows / Debt Service	Feder et al. (1981).
Consumer Price Index	Larrain et al. (1997).
Current Account Balance / GDP (GNP)	Brewer and Rivoli (1990), Cosset et al. (1992), Doumpos and Zopounidis (2001), Edward (1983), Haque et al. (1998), Larrain et al. (1997), Monfort and Mulder (2000).
Current IMF obligations/exports	Aylward and Thorne (1998).
Debt ¹¹ / GDP (GNP)	Aylward and Thorne (1998), Brewer and Rivoli (1990), Easton and Rockerbie (1999), Edward (1983), Eichengreen and Mody (1999), Haque et al. (1998), Hu et al. (2002), Larrain et al. (1997), Lee (1993b), Monfort and Mulder (2000).
Debt Service / exports	Aylward and Thorne (1998), Edward (1983), Eichengreen and Mody (1999), Feder et al. (1981).
Debt service / GNP	Doumpos and Zopounidis (2001).
Degree of Openness (Trade Openness)	Easton and Rockerbie (1999).

¹¹ The term "Debt", only in this case, refers to debt, external debt, long-term debt, total debt and total foreign debt depending on authors.

Expenditure/GDP	Aylward and Thorne (1998).
Export growth rate	Cosset et al. (1992), Doumpos and Zopounidis (2001), Haque et al. (1998), Monfort and Mulder (2000).
Export variability	Cosset et al. (1992), Eichengreen and Mody (1999).
Exports / GDP (GNP)	Aylward and Thorne (1998), Feder et al. (1981).
External Debt/Exports	Larrain et al. (1997).
Fiscal Balance	Larrain et al. (1997), Monfort and Mulder (2000).
Foreign debt to exports	Lee (1993a).
GDP(GNP) growth	Doumpos and Zopounidis (2001), Eichengreen and Mody (1999), Haque et al. (1996, 1998), Larrain et al. (1997), Monfort and Mulder (2000).
GDP(GNP) per capita	Aylward and Thorne (1998), Cosset et al. (1992), Erb(1997), Larrain et al. (1997), Monfort and Mulder (2000).
GDP(GNP) per capita growth rate	Aylward and Thorne (1998), Lee (1993a, b), Haque et al. (1996).
GNP / US GNP	Feder et al. (1981).
Government Debt Held Domestically / GDP	Lee (1993b).
Government Spending / GDP	Larrain et al. (1997).
IMF obligations in arrears/exports	Aylward and Thorne (1998).
Imports / GDP(GNP)	Aylward and Thorne (1998), Edward (1983), Haque et al. (1996).
Import volume growth	Doumpos and Zopounidis (2001).
Income velocity of money (GDP/M2)	Doumpos and Zopounidis (2001).
Inflation Rate	Aylward and Thorne (1998), Doumpos and Zopounidis (2001), Haque et al. (1996, 1998), Hu et al. (2002), Larrain et al. (1997), Lee (1993a), Monfort and Mulder (2000).

International Reserves / GNP	Edward (1983).
International Reserves	Citron and Nickelsburg (1987).
Investment / GDP (GNP)	Doumpos and Zopounidis (2001), Easton and Rockerbie (1999), Edward (1983), Monfort and Mulder (2000).
Interest rate on international lending	Lee (1993a).
Labor participation rate	Easton and Rockerbie (1999).
LIBOR rate	Easton and Rockerbie (1999).
Loan Duration	Edward (1983).
Loan Value	Edward (1983).
Net Foreign Debt to Exports	Cosset et al. (1992).
Net trade in goods and services	Doumpos and Zopounidis (2001).
Net transfers to GDP	Easton and Rockerbie (1999).
Non-commercial Inflows / Debt Service	Feder et al. (1981).
Present value of debt/Exports of goods and services	Doumpos and Zopounidis (2001).
Present value of debt/GNP	Doumpos and Zopounidis (2001).
Propensity to Invest	Cosset et al. (1992).
Ratio of Domestic Credit to GDP	Eichengreen and Mody (1999).
Ratio of Short Term Debt to Total Debt	Eichengreen and Mody (1999).
Real Exchange Rate	Haque et al. (1996, 1998), Larrain et al. (1997), Monfort and Mulder (2000).
Reserves / Imports	Aylward and Thorne (1998), Cosset et al. (1992), Doumpos and Zopounidis (2001), Easton and Rockerbie (1999), Eichengreen and Mody (1999), Haque et al. (1998), Feder et al. (1981).
Reserves/Short Term Debt	Eichengreen and Mody (1999).

Revenue/GDP	Aylward and Thorne (1998).
Reserves to total foreign debt	Hu et al. (2002).
Savings as a percentage of GDP	Larrain et al. (1997), Monfort and Mulder (2000).
Short-term debt / total debt	Monfort and Mulder (2000).
Short-term debt / reserves	Monfort and Mulder (2000).
Terms of Trade	Easton and Rockerbie (1999), Haque et al. (1996, 1998), Monfort and Mulder (2000).
Total debt as a percentage of exports	Larrain et al. (1997), Monfort and Mulder (2000).
Treasury bill rate	Eichengreen and Mody (1999), Haque et al. (1998), Monfort and Mulder (2000).
Use of IMF credit/quota	Aylward and Thorne (1998).

Appendix 2

This appendix provides World Bank classification of economies for developing countries studied in the model.

Country	Income group	Lending Category*	Other**
Bolivia	Lower middle income	Blend	HIPC
Brazil	Upper middle income	IBRD	
Congo, Rep.	Lower middle income	IDA	HIPC
Costa Rica	Upper middle income	IBRD	
Côte d'Ivoire	Low income	IDA	HIPC
Dominican Republic	Lower middle income	IBRD	
Ecuador	Lower middle income	IBRD	
Egypt, Arab Rep.	Lower middle income	IBRD	
El Salvador	Lower middle income	IBRD	
Gabon	Upper middle income	IBRD	
Ghana	Low income	IDA	HIPC
Guatemala	Lower middle income	IBRD	
Honduras	Lower middle income	IDA	HIPC
Jamaica	Lower middle income	IBRD	
Jordan	Lower middle income	IBRD	
Kenya	Low income	IDA	
Madagascar	Low income	IDA	HIPC
Mexico	Upper middle income	IBRD	
Morocco	Lower middle income	IBRD	
Niger	Low income	IDA	HIPC
Nigeria	Low income	IDA	
Panama	Upper middle income	IBRD	
Peru	Lower middle income	IBRD	
Philippines	Lower middle income	IBRD	
Rwanda	Low income	IDA	HIPC
Senegal	Low income	IDA	HIPC
Sierra Leone	Low income	IDA	HIPC
Togo	Low income	IDA	HIPC
Turkey	Upper middle income	IBRD	

Source: World Bank (2008)

*IDA (International Development Association) countries are those whose per capita income are less than \$1,065 and don't have the financial ability to borrow from IBRD (The International Bank for Reconstruction and Development). Blend countries are proper for IDA loans due to their low per capita incomes but are also appropriate for IBRD loans since they are financially creditworthy.

** Heavily indebted poor countries (HIPC).

Appendix 3

This appendix presents Paris Club releases on debt rescheduling of developing countries studied in the model.

Countries	Date of The Treatment	Type of The Treatment	Status of The Treatment
Bolivia	10/07/2001	HIPC Initiative Exit	fully repaid
	30/10/1998	Lyon	fully repaid
	15/12/1995	Naples	fully repaid
	24/03/1995	Naples	fully repaid
	24/01/1992	London	fully repaid
	15/03/1990	Toronto	fully repaid
	14/11/1988	Classic	fully repaid
	18/07/1986	Classic	fully repaid
Brazil	26/02/1992	Classic	fully repaid
	29/07/1988	Classic	fully repaid
	21/01/1987	Classic	fully repaid
	23/11/1983	Classic	fully repaid
	01/07/1964	Classic	fully repaid
	24/05/1961	Classic	fully repaid
Congo	09/03/2006	Cologne	active
	16/12/2004	Naples	active
	16/07/1996	Naples	active
	30/06/1994	Houston	active
	13/09/1990	Classic	fully repaid

	18/07/1986	Classic	fully repaid
Costa Rica	22/06/1993	Classic	fully repaid
	16/07/1991	Classic	fully repaid
	26/05/1989	Classic	fully repaid
	22/04/1985	Classic	fully repaid
	11/01/1983	Classic	fully repaid
Cote D'ivoire	10/04/2002	Lyon	active
	24/04/1998	Lyon	active
	23/03/1994	London	active
	20/11/1991	Houston	active
	18/12/1989	Classic	fully repaid
	18/12/1987	Classic	fully repaid
	27/06/1986	Classic	fully repaid
	25/06/1985	Classic	fully repaid
	04/05/1984	Classic	fully repaid
Dominican Republic	21/10/2005	Classic	active
	16/04/2004	Classic	active
	22/11/1991	Houston	active
	21/05/1985	Classic	fully repaid
Ecuador	13/06/2003	Houston	active
	15/09/2000	Houston	active
	27/06/1994	Houston	active
	20/01/1992	Houston	active
	24/10/1989	Classic	fully repaid
	20/01/1988	Classic	fully repaid

	24/04/1985	Classic	fully repaid
	28/07/1983	Classic	fully repaid
Egypt	25/05/1991	Ad Hoc	active
	22/05/1987	Classic	fully repaid
El Salvador	17/09/1990	Houston	active
Gabon	11/06/2004	Classic	active
	15/12/2000	Classic	active
	12/12/1995	Classic	active
	15/04/1994	Classic	active
	24/10/1991	Classic	fully repaid
	19/09/1989	Classic	fully repaid
	21/03/1988	Classic	fully repaid
	21/01/1987	Classic	fully repaid
Ghana	22/07/2004	HIPC Initiative Exit	active
	16/05/2002	Cologne	fully repaid
	10/12/2001	Naples	fully repaid
	18/04/1996	Classic	fully repaid
Guatemala	25/03/1993	Houston	active
Honduras	12/05/2005	HIPC Initiative Exit	active
	14/04/2004	Cologne	active
	13/04/1999	Naples	active
	01/03/1996	Naples 50%	active
	26/10/1992	London	active
	14/09/1990	Houston	active

Jamaica	25/01/1993	Houston	active
	19/07/1991	Houston	active
	26/04/1990	Classic	fully repaid
	24/10/1988	Classic	fully repaid
	05/03/1987	Classic	fully repaid
	19/07/1985	Classic	fully repaid
	16/07/1984	Classic	fully repaid
Jordan	10/07/2002	Houston	active
	20/05/1999	Houston	active
	23/05/1997	Houston	active
	28/06/1994	Houston	active
	28/02/1992	Classic	active
	19/07/1989	Classic	fully repaid
Kenya	15/01/2004	Houston	active
	15/11/2000	Ad Hoc	active
	19/01/1994	Ad Hoc	fully repaid
Madagascar	16/11/2004	HIPC Initiative Exit	active
	07/03/2001	Cologne	active
	04/09/2000	Naples	active
	26/03/1997	Naples	active
	10/07/1990	Toronto	active
	28/10/1988	Toronto	active
	23/10/1986	Classic	fully repaid
	22/05/1985	Classic	fully repaid
	23/03/1984	Classic	fully repaid

	13/07/1982	Classic	fully repaid
	30/04/1981	Classic	fully repaid
Mexico	30/05/1989	Classic	fully repaid
	17/09/1986	Classic	fully repaid
	22/06/1983	Classic	fully repaid
Morocco	27/02/1992	Houston	active
	11/09/1990	Houston	active
	26/10/1988	Classic	fully repaid
	06/03/1987	Classic	fully repaid
	17/09/1985	Classic	fully repaid
	25/10/1983	Classic	fully repaid
Niger	12/05/2004	HIPC Initiative Exit	fully repaid
	25/01/2001	Cologne	fully repaid
	19/12/1996	Naples	fully repaid
	04/03/1994	London	fully repaid
	18/09/1990	Toronto	fully repaid
	16/12/1988	Toronto	fully repaid
	21/04/1988	Ad Hoc	fully repaid
	20/11/1986	Classic	fully repaid
	21/11/1985	Classic	fully repaid
	30/11/1984	Classic	fully repaid
	14/11/1983	Classic	fully repaid
Nigeria	20/10/2005	Ad Hoc	fully repaid
	13/12/2000	Houston	fully repaid
	18/01/1991	Houston	fully repaid

	03/03/1989	Classic	fully repaid
	16/12/1986	Classic	fully repaid
Panama	14/11/1990	Classic	fully repaid
	19/09/1985	Classic	fully repaid
Peru	20/07/1996	Houston	active
	04/05/1993	Houston	active
	17/09/1991	Houston	active
	05/06/1984	Classic	fully repaid
	26/07/1983	Classic	fully repaid
	03/11/1978	Classic	fully repaid
	20/11/1969	Classic	fully repaid
	27/09/1968	Classic	fully repaid
Philippines	19/07/1994	Houston	active
	20/06/1991	Houston	fully repaid
	26/05/1989	Classic	fully repaid
	22/01/1987	Classic	fully repaid
	20/12/1984	Classic	fully repaid
Rwanda	10/05/2005	HIPC Initiative Exit	fully repaid
	07/03/2002	Cologne	fully repaid
	21/07/1998	Naples	fully repaid
Senegal	09/06/2004	HIPC Initiative Exit	active
	24/10/2000	Cologne	active
	17/06/1998	Naples	active
	20/04/1995	Naples	active

	03/03/1994	London	fully repaid
	21/06/1991	Toronto	fully repaid
	12/02/1990	Toronto	fully repaid
	24/01/1989	Toronto	fully repaid
	17/11/1987	Ad Hoc	fully repaid
	21/11/1986	Classic	fully repaid
	18/01/1985	Classic	fully repaid
	21/12/1983	Classic	fully repaid
	29/11/1982	Classic	fully repaid
	13/10/1981	Classic	fully repaid
Sierra Leone	24/01/2007	HIPC Initiative Exit	fully repaid
	10/07/2002	Cologne	fully repaid
	16/10/2001	Naples	fully repaid
	28/03/1996	Naples	fully repaid
	20/07/1994	London	fully repaid
	20/11/1992	London	fully repaid
	19/11/1986	Classic	fully repaid
	08/02/1984	Classic	fully repaid
	08/02/1980	Classic	fully repaid
	15/09/1977	Classic	fully repaid
Togo	23/02/1995	Naples	active
	19/06/1992	London	active
	09/07/1990	Toronto	active
	20/06/1989	Toronto	active
	22/03/1988	Ad Hoc	fully repaid

	24/06/1985	Classic	fully repaid
	06/06/1984	Classic	fully repaid
	12/04/1983	Classic	fully repaid
	20/02/1981	Classic	fully repaid
	15/06/1979	Classic	fully repaid
Turkey	23/07/1980	Classic	fully repaid
	25/07/1979	Classic	fully repaid
	20/05/1978	Classic	fully repaid

Source: Paris Club (2008)

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