A REVIEW AND ANALYSIS
ON THIRD WORLD DEBT RESCHEDULING MODELS

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by

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Debt rescheduling is the event that occurs when a less developed country is no longer able to meet its debt payments to its creditors. When a country cannot make its payments, it must renegotiate its loan agreements or obtain monetary aid from outside sources. Because rescheduling can involve large amounts of money, it is very important for those institutions that lend to less developed countries to be able predict the event and hence be better able to manage their own cash flows and use their money more efficiently.

This paper will examine two aspects of debt rescheduling; research already completed and some of the measures used in that research. It will look at a few of the studies done on Third World debt rescheduling, noting the procedures used, the variables included, and the results and conclusions. It will also look at alternate ways to predict debt rescheduling and compare these methods to the ones in earlier studies. The second section will look at the factors affecting some of the measures used in studying Third World debt and evaluating the risk of a country. The paper will conclude with a summary of the topics discussed and this author's conclusions. A summary of the studies and their findings can be found in exhibit 1.
1) Advance Warning Indicators

The first study I will cover is by Dr. Fuad A. Abdullah at the University of Nebraska at Omaha. In his article in the *Journal of International Business Studies*, "Development of an Advance Warning Indicator Of External Debt Servicing Vulnerability", he describes the objective of developing a leading indicator of external debt servicing vulnerability that could warn of a country's developing inability to make its payments. Dr. Abdullah used information from past studies to single out a few variables that directly preceded debt servicing difficulties in many countries. He found that all or most of the following events existed in countries experiencing payment problems:

1. A significant erosion in the international liquidity position.
2. A sharply faster growth rate of external debt than the rate of growth in export earnings.
3. An acceleration in the inflation rate experienced by the country.
4. A shortfall in exports or a deterioration in export performance.
5. Adverse internal political developments.

He used an index that was a weighted average of sub-indices or ratios that measure recent changes in the above variables. He applied the index to 20 less developed countries (LDCs) that accounted for about eighty percent of external debt. He grouped these countries into five categories that ranged from significant improvement in their debt servicing capacity to those that
signalled an imminent payments interruption. The Payments Interruption Likelihood Index (PILI) weights the above events in this way: 2.5 to the first two, 1.5 to the second two and 2.0 to the political situation. He thus comes up with a base number of 10, those above the base have improving debt servicing positions, and those below have deteriorating positions. He classified the countries into five categories according to their PILI score. Category one included those signalling improvement by having a score of 11 or higher. Category two countries signal no change and have a score between 9 and 11. Category three included those that signal possible future problems and have a score between 8 and 9. Category four countries signal likely payments interruption and score between 6 and 8. Category five included those signaling imminent payments interruption and score under 6.

Dr. Abdullah's index correctly identified five countries that rescheduled their debt by putting them in category four. One country in category three also rescheduled. The countries in category one had recently completed their rescheduling and were showing noticeable improvement.

Dr. Abdullah's index seems to be an improvement in the field of predicting developing countries' debt servicing problems. There are several other approaches, however, and the next one I will examine is a much more complex logit model to predict debt rescheduling.
2) Logit Model of Debt Rescheduling

William R. Cline, in his article "A Logit Model of Debt Rescheduling 1969-82", developed a model that may be used to identify when a country is approaching the need to reschedule. The model is based on the economic theories of supply and demand: the supply of rescheduling and the demand for rescheduling. Cline showed that both are affected by many factors, both internal and external. Demand is a downward sloping curve while supply has an upward slope. For most countries these two meet at an equilibrium point, but as a country's demand rises or the supply falls, the curves develop a supply gap and are in disequilibrium. Factors such as tightening world credit due to global economic factors or an unusually nervous international climate for lending will move the supply curve down and to the left. Domestic crop failures, a collapse in world markets, higher world interest rates and the resulting claims on foreign exchange, are examples of factors that can move the demand curve up and to the right. This equilibrium gap can sometimes be bridged by contractionary measures within the country and through guidance from the International Monetary Fund (IMF). The announcement of these actions may help to shift the curves back to an equilibrium point, but if the situation is dire enough even these would not help and rescheduling occurs. The ability to predict or anticipate when a country will reschedule is one that could greatly benefit the world capital markets. The more able these markets are to see a rescheduling coming, the better able they will be to prepare and manage the situation. This would
serve to help stabilize the markets and shift the supply curve permanently up and to the right.

Cline stated that there were twelve factors that need to be considered when evaluating a country’s position in the current economic environment; they are:

\[ p_{RD} : \text{Probability that a country will seek rescheduling} \]

**Demand Side:**

1. \[ P_{RD}^D = f_1(DSR)+ \] : Debt Service Ratio, this has a positive impact on the probability

2. \[ P_{RD}^D = f_2(RSM)- \] : Level of reserves relative to imports, this has a negative impact

3. \[ P_{RD}^D = f_3(g)- \] : The country’s rate of domestic economic growth, this has a negative impact

4. \[ P_{RD}^D = f_4(y)- \] : Growth rate of per capita income, negative effect

5. \[ P_{RD}^D = f_5(hCAX^2)- \] : Ratio of the current account deficit to exports of goods and services, negative effect

**Supply Side:**

6. \[ P_{RS}^S = f_6(DSR)+ \] : Debt Service Ratio, positive effect

6’. \[ P_{RS}^S = f_6(NDX)+ \] : Ratio of Net Debt (gross debt minus reserves) is an alternative measure to the debt service ratio, positive effect
7. \( P^R_s = f_7(pD/X) \): \( p \) is a measure of inflation, \( D \) is the total outstanding debt, and \( X \) represents exports of goods and services. The term \( pD \) is the amount of inflationary erosion of debt, negative effect

8. \( P^R_s = f_8(A) \): Amortization rate, negative effect

9. \( P^R_s = f_9(y) \): Level of per capita income, negative effect

10. \( P^R_s = f_{10}(s) \): The country’s savings rate where \( s \) is the ratio of domestic savings to GNP, negative effect

11. \( P^R_s = f_{11}(g_x) \): Recent growth rate of exports, negative effect

12. \( P^R_s = f_{12}(L) \): Measure of global credit abundance, negative effect

Canceling the opposing factors, we can get a short form of this equation, where \( Z_t \) is the variable indicating rescheduling in the year \( t \). We arrive at the logit model:

\[
z_t = b_1 \text{DSR}_{t-1} + b_2 \text{RSM}_{t-1} + b_3 A_{t-1} + b_4 y_{t-1} + b_5 (h[CAX]_{t-1}^2 + b_7 (pD_{t-1}/X_{t-1}) + b_8 A_{t-1} + b_9 S_{t-1} + b_{10} g_{x,t-1} + b_{11} g_{t-1} + b_{12} L_{t-1}.
\]

This can be altered by substituting \((b_2 NDX)\) for the first term \((b_1 \text{DSR}_{t-1})\) as an alternative indicator of debt burden as mentioned above.

The logit method allows for the dependent variable \( z \) to be transformed into a probability equation for rescheduling:

\[
P^R_t = 1/(1+e^{-z_t}).
\]
where $P_{BC}$ is the composite indicator of the probability of rescheduling and $e$ is the natural logarithm. The probability can range from zero (as $z$ approaches negative infinity) to one (as $z$ approaches positive infinity).

Dr. Cline then applied this equation to several models, the changes being the inclusion or removal of certain key variables, to see which ones had the greatest statistical effect. The most statistically significant model included measures of: debt-service ratio, ratio of reserves to imports, amortization rate, current account deficit relative to exports, growth rate of per capita GDP, and a variable for global borrowing. The models used data from sixty countries over a period of fifteen years (1968-1982). After adjusting for missing data and for omissions immediately following an actual rescheduling, there were a total of 670 observations. Twenty-two reschedulings occurred in the time frame and the model only failed to predict a rescheduling 9.1 percent of the time and predicted a rescheduling when none occurred only 13.0 percent of the time. A close examination of the results led Dr. Cline to find that there is a difference between large and small debtor countries. It appears that small debtor countries reach a rescheduling stage at lower levels of debt burden than do the larger countries. Because of this and due to the fact that large debtor countries have the most effect on the world financial system, another model was created using the 31 large debtor countries in order to more accurately predict rescheduling in this class of countries. The model proved to be very accurate,
predicting almost all the rescheduling on or the year before the actual event at a cutoff rate of .24.

The logit model approach appears to be a very good tool for evaluating a country's financial position and its ability to service its debt. If its implied assumption that a country with a deteriorating political situation will also be experiencing financial difficulty, holds true, then the exclusion of a political adjustment factor may be justified. It seems this important measure cannot be ignored in light of the fact that in almost all of these countries, a major shift in the political environment can mean a drastic change in course for the whole country. The logit model seems to prove that this assumption does hold true, for the statistical test of the results are certainly viable and definitely show this method to be one to consider.

3) Debt Rescheduling Indicators and Models

The next study to be examined was submitted to the Journal of International Business Studies in 1985 by Dr. John B. Morgan of Data Resources, Inc. "A New Look at Debt Rescheduling Indicators and Models", presented both logit and discriminate analysis of debt rescheduling.

This article stressed the need to continually reevaluate the evaluation techniques used to predict debt reschedulings. As the world financial situation changes, new measures and standards are needed to help us to determine the possibility of a rescheduling. As previous discussions have pointed out, it is vital in the
volatile world of global finance to be able to assess a country's financial position and its ability to service its debt load. Dr. Morgan attempted in this article to consolidate information from earlier studies and to new models that include new short term data in logit and discriminate approaches.

Dr. Morgan found that due to the time frame in which earlier models' data were based, they now over or under-estimate debt reschedulings. A revision of the variables and a change in the time frame to include the last two recessions and the two oil price shocks gives the model new data to create a better forecast than those it builds upon.

The model can be divided into three categories; supply, demand and exogenous shock indicators. The supply indicators used were: total debt to exports, short-term debt to exports, principal payments to total debt (the amortization rate), and the current debt service ratio. The demand indicators were; the current account balance (proxy: exports to imports), international reserves, and the international reserves to imports. Exogenous variables included; the percent of variable interest rate loans to total medium and long-term debt multiplied by the U.S. prime rate (as a measure of interest rate shocks to the country), the ratio of total bank lending to the non-oil developing countries divided by the total current account deficits of the non-oil developing countries, and real GDP growth. The data included 240 observations of nine indicators. Of these, there were 40 reschedulings or 16.6
The logit analysis consisted of two models with different combinations of the variables. Most significant in model A was the current account deficit, and in model B the reserves to imports ratio proved to be the significant indicator. Using a cutoff rate of .33 resulted in 7 misclassifications of countries that rescheduled and 14 predictions of rescheduling when none occurred, with an overall accuracy rate of 91.3%. Morgan found that when he adjusted his data base by dropping data for a country for two years after a rescheduling, as Cline did in the above study, that the model was less sensitive than when the data was retained. Morgan concluded that the procedure of dropping data for the two years following a rescheduling does not appear to improve the model.

Morgan used the same data base to produce a discriminate model using the six variables in his B model: reserves to imports, total debt to exports, short-term debt to imports, the interest rate sensitivity indicator, the bank lending indicator, and the real GDP growth rate. Because the two approaches were based on the same data, a direct comparison can be made. The discriminant model had an accuracy rate 85.4%, and the differences in errors were small between the two models when the logit model B was subjected to a .16 cutoff point to equalize the percentage of misclassification and non-prediction errors.

These models improved on the ones that precede them because they captured the effects of the period from 1975 to 1982, and under statistical examination proved to generate significant
4) Forecasting Methodology

The last study I will discuss is from Briance Mascarenhas and Ole Christian Sand, of New York University and Elkon Finans A/S (Oslo, Norway), respectively. This article examined forecasting methodology in predicting international debt reschedulings. Three approaches were compared, single-method, raw-data combination, and forecast combinations. The authors are again concerned over the ability to design a more accurate forecast for international business analysis due to the volatility of the environment.

Most studies in international business today are based on the single-method forecast approach. This method is the most well known and is represented by the studies above.

A raw data combination approach combines the original data from more than one forecast to develop a new data base. An example of this type is combining an objective indicator model with a subjective country-risk rating model. Certainly some of the data in a subjective rating utilized some amount of objective indicators, but as long as there is a difference in the data bases, there should be an improvement with the combination. However, improvement is not guaranteed, and close comparison of the data sets is essential to determine the number of variables coinciding and the resultant loss of observations.

The forecast combination approach is related to the diversification strategies found in Wall Street. By combining two
or more forecasts, one should be able to magnify their strengths and minimize their weakness, thereby arriving at a more accurate forecast. Various methods exist as how to combine forecasts. Equal weighting has little theoretical justification, but it has performed well empirically. Regression based weighting methods have a good theoretical base, but they have performed poorly empirically due to the lack of the large amounts of data for each period that is required for an accurate error measure.

Another method of forecast combination has been proposed (Gupta and Wilson [1987]) that may be a more appropriate approach to taking into account weights for the accuracy of the forecasts involved: the odds-matrix method. This method compares two forecasts using a matrix to compute the probability that one forecast will out perform another. This method does not require an exact error measure like the regression-based methods because the relative performance can produce the odds by comparing which forecast had a predicted a higher (lower) probability of a country rescheduling when the country actually did (did not) reschedule.

For this comparison the period 1980–1984 is examined because it encompasses major economic events and the most recent data (at the time of the study). Forty countries were included and a cutoff rate of 0.50 was used in the six models compared: the naive approach, objective indicator approach, banker’s subjective judgement, raw data combination, forecast combination with equal weighting, and the forecast combination using the odds-matrix.
The naive approach model was used as a benchmark using an equal probability of correctly assigning the countries to the right classification. This gives an expected number of countries correctly classified as half of the number of observed cases or .50 times 116 = 58. The model resulted in correctly identifying 58 of the 116 cases.

The objective indicator model used four economic variables: domestic inflation rate, real growth in gross domestic product, ratio of total external debt to exports, and the ratio of external debt service payments to exports. This model correctly predicted 76 of the 116 cases in the hold out period but failed to predict any cases in the base period. A possible explanation is that the variables used were no longer as significant as they were in the models from earlier periods.

The banker’s subjective judgement model has only one independent variable, which is the Institutional Investor’s country risk rating. This is a compilation of the individual subjective ratings from executives of about 100 leading banks. This model correctly predicted only 73 of the 116 cases in the hold-out period and predicted more rescheduling cases than model two. Although model two's overall accuracy is higher, the results may be meaningless and costly for banks.

The raw data combination model used the raw data from models one and two. To reduce the amount of repeated data, a regression was used and the residuals were then included with the objective
indicators from model two to form the data base for this model. This model represented an increase in accuracy over the former models from which its data was taken as it accurately predicted 79 cases.

Forecast combination with equal weighting used the results from models two and three to arrive at a final probability prediction. This model proved to be even more accurate, predicting 82 of the 116 cases.

The forecast combination using odds-matrix weighted the accuracy of models two and three in the hold-out period and then used the weights to combine the forecasts to arrive at a final prediction. This model had the highest accuracy of all the models, correctly predicting 85 of the 116 cases.

This article provides evidence that forecasting accuracy may be improved through diversification, either through combining the raw data itself or through combining the forecasts results. Accuracy improved in this study as we moved from the naive approach to the most accurate method using the combination of forecasts with the odds-matrix method of weighting. The odds-matrix method proved to have the only statistically significant advantage over the other non-naive approaches. However, the forecasts used are the major factor in the accuracy of the combination. Due to the nature of the odds-matrix using forecasts based on prior periods to predict in future periods, single method approaches may still outperform combination methods and therefore cannot be abandoned.
5) Early Warning Indicators

This next section of the paper will examine the variables used in the various forecasting approaches.

The first article, by F.N. Burton and H. Inoue, "An Appraisal of the Early-Warning Indicators of Sovereign Loan Default in Country Risk Evaluation Systems", looks at current measures used in evaluating country risk. We have seen that there are many methods of forecasting debt servicing difficulties in LDCs and that the choice makes a big difference in the results obtained. The same is even more true with the variables used in the study. The raw data compiled to create a forecast can take many forms and shapes and it is the creators job to limit the amount and type of data in some way so that to use the forecast in the future, one does not have to collect truckloads of data to compute a new rating. The job of limiting is both subjective and objective. It incorporates the creators views and also his calculations to determine which variables appear to be relevant and significant from the data base he is working with. Once he has done that, he can create his forecast.

Variables can be separated into four groups: domestic economy related variables, external economy related variables, external debt related variables, and finally, others. The authors strive to point out that the selection process for the variables currently in use is rather poor and should be upgraded to produce the results and accuracy bankers and others in the financial community require. They argue that the selection of objective indicators has mostly
been based on banker's feeling and then becomes much more subjective and open to debate. They claim that the selection should be based on theoretical deduction and empirical verification.

The Domestic Economy: Variables included here represent the economic position of the country involved.

National Income: These include GNP, GNP growth rates, and GNP per capita, which measure the ability of the country to survive through periods of contraction as a method of correcting external imbalance. The main problems with these measures are unsatisfactory exchange rates used to get comparable measures and the tendency to understate poor countries' and overstate rich countries' relative performance. With per capita GNP, there also seems to be a problem in assessing its trend. Currently it is considered to be a linear function of debt servicing capability, when in actuality it is probably more U-shaped, with the low and high income countries having more difficulty handling their debt than the middle income countries.

The Money Supply and Budgetary Balance: These represent the countries' fiscal management ability. Included are, monetary, fiscal, and exchange rate policies. Frequently inflation rates have been regarded as a good measure, but it has been the countries' response to inflation through monetary expansion or contraction that has had a greater impact on a country's ability to service debt and its loan default risk.
The External Economy: These variables focus on the country’s relative position in the world market and the resultant effect on debt servicing capability.

Exports: Overall export performance has been regarded as an important variable; however, the ratios of export performance have been shown to be more relevant than sheer volume. Export growth may also be an erroneous factor due to its fluctuation. It generally tends to decline, rather than sustain, after a period of expansion.

Imports: Both import growth and volume measures have been included in banker’s studies, but a better measure may be some ratio that measures the reliance of a country on essential imports such as food and energy to total imports or GDP.

Foreign Exchange Reserves: Reserves measure the ability to withstand a shift in the balance of payments and can be considered an important variable. However, the standard by which to judge these reserves are unfounded and may make an absolute number meaningless. Other measures such as liquidity of reserves or the proportions hedged against private loans and which constitute borrowing could better reflect the country’s foreign reserve strength.

Other Components of the Balance of Payments: Variables such as foreign and direct investment, foreign aid, loans and IMF borrowings may be useful in predicting loan default, but accurate measures of these items have yet to be developed.
**Debt Related Factors:** These factors focus on variables due to the actual debt a country carries.

External Debt Outstanding: The main difficulty with this measure is that there is no firm way to set an acceptable level. Credit worthiness varies widely between countries with comparable size and level of debt. A better measure may be the proportion of debt outstanding to the value of exports, but even this measure or its related measure, proportion of debt outstanding to GNP, do not take into account other aspects of debt such as interest payments, maturity dates, and grace periods.

Maturity Composition: This is generally measured by the ratio of amortization to the total debt outstanding. The problem is that there is no generally accepted implication of this measure; however, empirical tests have shown that a higher ratio indicates a rescheduling case.

Debt Service Ratio: This is the most common and quickest method of testing debt servicing capability. Studies have shown that ratios in the 15% to 20% range signify a country at risk of default. This measure tends to disregard some important information and the data used to compute the ratio lags two to three years. Another problem is that it does not consider the amount due, only what was actually paid, thus making the ratio low in years of default and high in the year preceding the maturity payment. There are also difficulties in the estimation of DSRs in years when the LIBOR rate varies widely. Statistical analysis proves to show little significance in this measure.
Other Factors: These focus on the administrative ability and the socio-political situation in a country. Bankers often give these high weights, as much as fifty percent, but the measures are highly subjective and non-systematic.

Administrative Ability: Monetary and fiscal variables may give some indication of this factor as administrative ability highly affects these areas. The government’s ability to manage the country may have an affect on its ability to counteract downturns in the economy. Administrative inability may generate debt servicing difficulties if the government is not able to institute proper corrective measures.

Political Instability: This factor can affect loan payments either directly or indirectly. A leader of a country may voluntarily suspend payments of interest and loans especially during times of war or after a hostile takeover and the resulting change in leadership. A leader may move his country into a position of economic difficulty through an act of war, or domestic violence may sufficiently disrupt the economic system so as to make the country unable to pay. The authors have constructed a chart to attempt to quantify the political factors and therefore enable analysts to include these factors in their models.

The authors claim that despite the evidence that political instability is one of the greatest risks that suppliers of funds face in Third World countries, it has been widely ignored. With their method of placing these variables in a table format, one should be able to make some sort of quantitative analysis and
derive a usable measure from this information.

6) Country Risk Ratings

A related article by Dr. Erwin Dichtl and Hans Georg Koglmayr, both of the University of Manheim in Germany, takes a look at the validity of country risk ratings.

The authors examine a rating that closely approximates the Business Environment Risk Index (BERI): the "Manager Magazin" (mm) country test. As opposed to the BERI's assessment compiled from 100 experts working in groups of ten to fifteen making three assessments per year of forty-five markets, the mm test is composed of assessments of 225 experts in groups of between three and eight, assessing once a year fifty-three countries.

The authors analyzed the mm test as to how it compares to other forms of assigning risk to third world countries. The test showed a high correlation with objective data of the countries in question using twenty-five key variables. A surprising result occurred from the examination of the data. They found that who a country borrows money from, makes a big difference in the country's perceived risk. Loans from the Bank for International Settlements gives the country a good image, while assistance from the International Monetary Fund tends to give the country an image of being desperate. The mm test was designed to help business assess the risk in a certain country to aid in its decision to invest in that country. We can, then, test to see if businesses, in fact, avoid countries with high risk. What we find is that there seems
to be little correlation here; the businesses seem to place higher value on trouble free labor relations and established trade relations. This reveals that no matter what source country risk ratings come from, they seem to be under-utilized. The corporations tend to prefer specific relationships and contact to objective or expert subjective opinion.

The mm test was then subject to a comparison of other subjective ratings to determine if the mm test was valid. The Institutional Investors Index and the Euromoney surveys selected for their match of method (in the case of the III), and their opposing method (the Euromoney approach is that risk is reflected in the credit terms awarded to countries if the loans are backed by public mortgages). The mm test correlated highly with these two measures providing evidence that the mm test is indeed valid.

The authors conclude that the subjective ratings are in truth no better than objective data and in financial terms are much more expensive to generate than objective forecasts: access costs can often run into the thousands of dollars. They believe that many of the subjective ratings are based on questionable criteria and do not justify the high cost and therefore recommend the usage of objective data in an advanced forecasting technique.

7) Capital Flight

Another measure commonly used in rescheduling forecasts, is described in Michael P. Dooley's article, "Capital Flight: A Response to Differences in Financial Risks". Mr. Dooley explains
the causes behind capital flight and how to better understand this activity.

Mr. Dooley uses a slightly different definition of capital flight in order to differentiate between normal portfolio considerations and the intent to place assets outside of the resident country's control. He defines capital flight as "the stock of claims on nonresidents that do not generate investment income receipts in the creditor country's balance of payments data". He states that three variables may serve as determinants of capital flight: domestic inflation, financial repression, and the risk premium.

Domestic Inflation: This measure is generally taken from the amount of tax the government has resorted to placing on its population to boost revenue. This is an indicator of the country's economic difficulty and the government's ability to handle it. The country may be considered at risk when the government is using the inflation tax.

Financial Repression: This measures the difference between short term assets in U.S. dollars and time deposits in the domestic currency adjusted for exchange rate changes. A positive value indicates that these deposits are threatened by the inflation tax. A difference in favor of the dollar denominated assets indicates more capital flight.

The Risk Premium: This is the risk premium as stated in Dooley(1986) and represents the risk non-residents associate with the possibility of being 'taxed' by the subject country's
government. As this risk increases, capital flight should decrease as the risk for residents and non-residents equalizes.

The author's regression analysis of these variables supports his statement that these are important determinants of capital flight. The author concludes that measures of external influences upon a country and their effect on its ability to service debt may give a more complete representation of a country's financial position. These measures would be useful in evaluating the country's creditworthiness and investment attractiveness.

8) Rating Services and Country Risk

The final article included in this paper focuses on existing ratings services and their views of the ways to measure a country's risk. "Of Tin Hats and Crystal Balls" by Michael Blanden of THE BANKER, reviews several firms' practices in rating country risk.

Seemingly a standard in the rating field, International Country Risk Guide, uses 24 criteria separated into political risks, financial risks, and economic risks, to arrive at their ratings. Other firms may use more or fewer criteria depending on their view of each criteria's importance. Nearly all current rating services for bankers use some mix of subjective and objective variables. The ratio varies between services but all agree that neither one acceptably encompasses a good measure of risk, but by combining them together they hope to capture a more accurate assessment of the country's position.
9) Summary and Conclusions:

I have examined eight articles, ranging from international debt forecasting models to a review of the thoughts from country risk evaluators on their methods. Some authors used single forecasts as predictors of rescheduling while others argued for combination forecasts and other techniques. Most studies weight their variables in some way, like the PILI by Dr. Abdullah and the odds matrix method in Mascarenhas and Sand. Others preferred to use the objective data as is. There is almost an infinite number of methods that can be used in evaluating a country's debt servicing capability. This is due to the fact that there is a multitude of variables of different degrees of availability and with different degrees of perceived importance. The usefulness of a forecasting model is determined by its ability to produce timely and accurate predictions of the economic future of a particular country. The usefulness increases as the model becomes more accurate and timely for more countries and for a more distant time horizon. Because the global economic situation is rapidly changing, because accurate and timely country information is hard to come by, and because drastic changes within the countries is always possible, the task of creating this useful forecast is very difficult. These volatile factors make it difficult to define parameters in which to judge forecasts and results may appear different to different people. Objective forecasts cannot even be truly evaluated because standards for decision making are not agreed upon and the whole process becomes very much subjective in
judging the level at which factors become important in classifying countries, 'at risk'. Separate forecasts may arrive at separate conclusions for the same country. Factors such as the time frame of the data on which the forecast is based and the types and number of variables included make each forecast very different.

Does this mean that debt rescheduling forecasts are not valuable? No, of course not. Something is better than nothing, for the alternative is either blind lending or no lending at all. Blind lending would without doubt, lead to catastrophic losses, and no lending at all would deprive the lenders of what can be substantial returns. What it does mean is that there is substantial room for improvement in the field of forecasting, and a need for ongoing scrutiny of the current forecasting techniques. The last ten years have seen a great improvement in the risk evaluation ability of banks and rating services and with the continuing improvement of information gathering and analysis, we should see more improvement in the future. The global financial markets have provided an invaluable service to the developing countries, helping them to raise the standard of living of their residents while, in some cases, generating substantial returns to the lending institutions. Improvement in the ability of evaluating risk and debt servicing capability of these developing countries will enable the process to become more efficient and profitable. New techniques of using existing forecasts by combining objective and subjective analysis or using the odds matrix type weighting approach also show promise. Innovations in this field should
increase the usefulness of the forecasts being produced. As standardization of information continues to develop and the methods become more refined both in what variables are important to include in a forecast, in subjective as well as in objective forecasts, and in how these forecasts can be used in conjunction to better evaluate a country, we should see the available investment opportunities increase and the ability of Third World countries to develop, improve.