The Rise of Empirical Models of Sovereign Risk Analysis

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Notes to readers

- This paper is part of my thesis: Laskaridis, Christina (2021) *Debt sustainability: towards a history of theory, policy and measurement.* PhD thesis. SOAS University of London. DOI: https://doi.org/10.25501/SOAS.00035675 https://eprints.soas.ac.uk/35675/
- This paper is a starting point for using part of the material presented in Chapter 4, a very long and clunky chapter, into a stand-alone piece.
- It is a first draft – and presenting it as a standalone raises a number of questions that I would appreciate feedback on.
- Taken out of the context of the thesis, the main protagonist of the paper is less clear – is it the policy debate, the institutions, or models?
- How much importance should be place on the overarching setting and policy context
- The presence of biographical and institutional information
- What does it tell us about economic expertise in a heated context?
- Future archive visits are planned – advice would be very welcome

1. Introduction

Throughout the 1950s, 60s and 1970s there were escalating debates surrounding the growing debt repayment difficulties, and the role of economic analysis within the debate. The 1970s saw the rise of empirical measurement efforts driven by lending institutions to derive 'critical thresholds' after which repayment problems were likely. As debt problems worsened, the political conflict over resolution on debt repayment difficulty became evermore entrenched. This gave rise to different conceptions of the role of economic analysis and the type of economic analysis that would be needed in calculations around debt repayment prospects. The lack of political agreement as to how to resolve debt crises was accompanied by an increased effort by creditors to assess debt repayment capacity through empirical models. The paper traces the origins of more formal and statistically determined debt repayment models instigated by lending institutions such as the US Export-Import bank. These quantification efforts of creditworthiness focused on short-run approaches to repayment capacity, leaving long-run determinants behind. The paper shows the development of technical expertise in a variety of financial institutions, each concerned with their growing credit exposures to developing countries. The paper draws some conclusions about the development of the tools in light of the policy debate over resolving repayment difficulties when they arise.

Section 2 provides background to the empirical models that developed in the 1970s. Section 3 examines new empirical models that tried to capture a critical value after which repayment problems would arise. Section 4 the integration of new techniques by the private financial sector and Section 5 cover the broad debate between lenders on new economic techniques as took place at conference hosted by the Export Import Bank. Section 6 concludes.

2. Background

The trajectory between 1964 and 1979 spanning UNCTAD I and V reveals a progressive exacerbation of debt repayment difficulties, matched by repeat refusals by creditors to adopt any of the resolutions for improvement. The debate between debtors and creditors hardened into detailed examination of malpractice, problems of creditor coordination and the

objectives of debt restructuring. Developing countries analysed similarities in the international conditions afflicting them and called for *general* debt relief while creditors saw debt problems largely as balance of payments problems due to domestic mismanagement. As will be examined in the following Section, economic analysis was a crucial element of the debate. The efforts by developing countries to propose resolutions and betterment to the situation was repeatedly refused by creditors.

In the 1950 and 1960s, a team of economists in the research department of the World Bank made a range of important analytical developments regarding the meaning and measurement of a country's debt repayment capacity. The lead, Dragoslav Avramović and his team concluded that in the short run, various factors impinged on a ability to repay debts but that ultimately, in the long run, on domestic savings and growth. Debt financed structural change would gradually increase repayment capacity as the country reached its target rate of growth. However, growing question marks over the use of a fixed ICOR that underpinned this line of thinking undermined this mode of analysis. The main alternative to this view, the project-focused view, faced its own analytical challenges. The comparison of rates of return with the cost of borrowing faced difficulties when considered at the country level. There was a growing dissatisfaction with the myriad complications over calculating rates of return, and as explained by Jalan, this led to the interest "of the aid givers in relating terms to debt-servicing capacity has naturally shifted to the overall macro- economic prospects of the borrowing country" (Jalan, 1970, p. 237).

During the 1970s there was a notable analytical and policy shift towards looking at debt repayment problems as predominantly short-term, balance of payments problems. This perspective gave easy credence to the view that debt problems arise from debtor mismanagement, and hence are amenable to domestic conditionality. This approach was embedded in the thinking of the IMF, arising from the work of Jacques Polak and the monetary approach to the balance of payments (Polak, 1957). Throughout the 1970s however, it became more closely referred to in debt discussions and was more widely shared. While the debt-service ratio was a quick way to ascertain short-run balance of payments pressures and remained in use, and it remained in use to judge repayment capacity despite its known problems widely analysed and by World Bank economists (Avramović, 1960, 1964; Avramović & Gulhati, 1958). This rule of thumb indicator, while handy, when used to set terms of the loans conflated different aspects of the problem.

3. The search for critical values

Henry Wallich, a member of the Federal Reserve Board of Governors, addressed a conference focused on analytical techniques of international lending, stating that the analysis of country risk is slippery. “Practitioners of this activity are the first to point out that analysis of country risk is not a science. I hesitate to call it an art; perhaps it may be dignified with the term “craft”” (Wallich, 1978, p. 15). Across a number of lending institutions, the priority shifted to predicting repayment problems and devising techniques useful to policy makers given the growing risks of increased exposures in developing countries. During this period, developing an understanding of country – sovereign – political risk, issues not firmly divisible, was part of a common discussion across private financial actors, regulators and development institutions.

During the 1970s, the increasing exposure of northern banks to developing countries stimulated the need for further study and knowledge exchange. Increased lending to developing countries created the impetus to advance techniques to better understand debt repayment difficulties. While in the political debate in the UN system there was no agreement on the form or role of economic analysis, creditors across the board agreed that better techniques to guide lending and predict default were needed. Creditors poured efforts into the development of analytical techniques, and also to discuss legal aspects of international lending and exchange opinions and practices over the technical and legal aspects of borrowing (Rubin, 1971). The variety of purposes of international lending, but also the multitude of techniques used may prejudice the objective of economic development, raising the importance for coordination.

Despite the growing alarm that increased exposures to developing countries was posing to regulators, politicians, commercial lenders and security analysts all at once (Goodman, 1978), there was no commonly held view about the relevant economic analysis. This contributed to the view that the state of economic knowledge on the subject needed to improve. When Mayo and Barrett, two modellers from the US Export-Import Bank (EXIM) began to investigate this further, they exclaimed that “it is somewhat surprising to find only three major studies which rigorously attempt to apply this principle to the problems of assessing country credit risk” (Mayo & Barrett, 1978, p. 82).

Table 1: Timeline of Key Empirical Developments in Country and Sovereign Risk Analysis

Type	Publication	Institution	Main Issues
Empirical models	Frank & Cline (1971)	US AID	DSR & other short-term factors
	Feder & Just (1976)	Giannini Foundation	DSR & long-term factors
	Mayo & Barrett (1978)	Export-Import Bank	Inflation; not the DSR
Creditors	Survey by EXIM	Banking Sector	Mixture of fully qualitative; structured qualitative; checklist
		World Bank	No set creditworthiness formula, focus on domestic management
		IMF	Balance of payments & adjustment potential
Financial Journals	Euromoney (1978)	Euromoney	Inaugurates Country Risk League Table based on spreads
	Institutional Investor (1979)	Institutional Investor	Country Risk rating based on questionnaire

The first paper to quantify debt repayment difficulties came out of the US development agency. The US AID's Office of Program and Policy Coordination produced a classified report in 1968 to examine debt servicing problems and how this would affect US policy, which had started to harden its terms of development assistance after 1964. This was subsequently published as Frank & Cline (1969) and Frank & Cline (1971). The motivation for the paper, as the authors explained, was that "It would be extremely useful for policy makers to have some indication of the difficulties which less developed countries are likely to have in the future" (Frank and Cline, 1971, p. 329). The reason was to enable creditors to judge the likelihood of repayment before lending on hard terms. The authors were colleagues at Princeton and worked together at the USAID's Summer Research Program. Frank began his career in Kampala as a Lecturer, moving to Yale 1965-67 as an assistant professor and Princeton in 1967. By 1968, he was Assistant Professor of Economics and International Affairs, and worked on development planning with a focus on Sub-Saharan Africa. Since 1966, he had worked as a consultant with USAID Summer Research Program (Frank and Cline, 1971). Cline received his first degree from Princeton (1963), and his PhD from Yale in 1969. At the time of their publication, he was Assistant Professor in Economics at Princeton (1967-1970), and had worked on developing countries, with a focus on land reform. At USAID's Summer Research Project in 1967, he worked under Thomas Gewecke, a Program

Economist at USAID who co-authored the classified report but was not part of the subsequent publications.

The authors hoped to devise "an index or indicator of the likelihood that a less developed country will experience debt servicing difficulties" that should be both simple to construct and be a good predictor of default probabilities (Frank and Cline, 1971, p. 329). They started from the relevant variables that affect debt service that Avramović and his team – the "leading students" on debt repayment difficulties, as Kindleberger described them (Kindleberger, 1966), identified, and decided upon eight relevant variables, including the debt-service ratio, and used the data covering 26 countries over a nine-year period (1960 – 1968). Some of the countries they examined faced debt repayment difficulties and their debts rescheduled during this period.[1] They wanted to determine which of a series of commonly used indicators were better predictors of the repayment difficulties that some of the countries faced. To do so, they assumed countries belonged to one of two populations: if a critical threshold is surpassed and a country needs rescheduling, the country belonged to a 'defaulting population'. Their method was a modification of discriminant analysis, using a composite index of a vector of observations of debt servicing capacity that traced how each indicator for each country developed. They aimed to find the critical value of this composite index such that if the index was above or below some critical value, the country came from the defaulting or non-defaulting population. They searched for the function such that type I and type II errors were minimised. Their results suggested that three variables were significant at the 5% level: the debt-service ratio, the amortization-to-debt ratio and the imports-to-reserve ratio.

Having identified which variables 'matter', the second part of their exercise was to make projections of key variables regarding debt evolution until 1992. They make projections using assumptions on existing compositions of debt as indicated in the IBRD data system, and under a few different scenarios regarding export growth. The paper concluded that good prediction rates were possible even if reliant on only a few factors. Based on existing trends, they estimated that several countries would seek debt relief, and some would face serious problems as many countries already had favourable terms and so further easing of loan terms would not make much difference (p. 344). Their study was praised as "pioneering" by subsequent analysts, despite several technical weaknesses (Mayo and Barrett, 1978).

[1] Argentina, Brazil, Chile, Ghana, India, Indonesia, Turkey, and the U.A.R.

Gone were the days of only "verbal arguments" (Feder & Just, 1977b)– Frank and Cline were praised as the first to offer a quantitative measure of relative importance of determinants of servicing difficulties (Feder and Just, 1977a, n. 1). Following in Frank and Cline's footsteps were Feder and Just (1976-7) who worked together in California, Berkeley and made the next substantial contribution. With a degree from Tel Aviv in Economics and Development Studies, Feder received his PhD in 1976 from Berkeley on the topic of 'Default Risk Indicators in International Borrowing' (AEA, 1976). He started at the World Bank in 1982, spending much of his career there, with an emphasis on agriculture and natural resources.

He was engaged in the theoretical literature on international borrowing, that developed out of optimal growth theory as well as in empirical estimations of servicing difficulties. Feder had written a theoretical paper on international borrowing with Uri Regev who worked on Resource Economics. Regev, with a degree from the Hebrew University and PhD from Berkeley in agricultural economics in 1968, focused for a large part of his career on the economics of pest control, but in 1975, they co-authored "International Loans, Direct Foreign Investment, and Optimal Capital Accumulation" (Feder and Regev, 1975) that drew directly from the intellectual tradition of optimal growth-debt models of Bardhan and Hamada associated with the work of Shell, (1967) (Bardhan, 1967; Hamada, 1969). His advisor, Richard Just, was appointed at Berkeley through the Giannini Foundation of Agricultural Economics, himself a student of George Kuznets, brother of the Nobel Laureate (Johnston & McCalla, 2009). The Giannini Foundation was an important site for agricultural economics, resource economics and study of commodities, among other specialisations. It operates across the entire University of California with member departments of agricultural and resource economics from Berkeley and Davis, including non-academic partners and the departments and faculty related to the Environmental and Natural Resources Economics program at Riverside (Johnston and McCalla, 2009, p. 2). With a first degree in Statistics, he earned his PhD in agricultural economics in 1972 at Berkeley.

Feder and Just aimed to make methodological improvements to the work by Frank and Cline. They developed the means with which to choose the relevant economic variables needed to identify repayment likelihood of borrowers. They examined countries between 1965 and 1971, and identified 21 observations of default by 11 countries, with default taken to mean any delayed or rescheduled payments on public and publicly guaranteed foreign loans sourced from Bitterman's study (Bittermann, 1973). They used logit analysis, which assumed that a specific event takes places after variables pass certain thresholds, and based

on statistical tests, they ascertained which indicators were most relevant. The total number of countries represented in their study accounted for approximately 80% of outstanding developing country debt. To the indicators included in Frank and Cline, they added capital inflows and per capita domestic product. Their results showed six as opposed to three variables as being significant, and to the three in Frank and Cline, were added indicators that showed long-term dynamics such as export growth, per capita income, as well as the capital-inflows-to-debt-service ratio. This result was important for it brought in long-term factors which they argued made their results "consistent with arguments advanced by Avramović (1964) and Mikesell (1962)" (Feder & Just, 1977a. p 36)

In contrast to Frank and Cline, whose findings showed only short-term factors as being relevant, they argued that their estimation tried to capture long term growth, which as Avramović (1964) argued, was the only limiting factor in the long term. When comparing the performance of their model to Frank and Cline's, they found that theirs yielded less errors in a greater number of observations. Feder and Just also created estimates of probability of default based on current economic conditions, stating the importance of their study for the policy of lenders and borrowers.

The third main formal econometric model on creditworthiness and default prediction was developed in the US Export and Import Bank (EXIM) by Mayo and Barrett (1978). The model built on the previous two studies but extended the analysis to include more countries over a longer period, incorporating additional variables, and a broader measure of repayment difficulty. Being a lender, they were able to include not just multilateral rescheduling but experience from servicing difficulties on their own claims. They identified 50 variables for 48 countries over 1960-1975, and included debt projections up to 1980. Their dataset included approximately 40000 observations, with the sample covering up to 93 percent of outstanding developing country debt at the time (Mayo and Barrett, 1978).
They redefined the measurement of rescheduling to "include a rescheduling up to five years hence" (Mayo and Barrett, 1978). Their main methodological innovation was to make the model "forward looking" by predicting up to five years in advance. In their study, the dependent variable may take on one of two values depending on whether a rescheduling will occur sometime within five years or not. This really was an early warning model, and as the authors' argued, possibly the first of its kind. Their forward-looking approach extended "predictive power to a time horizon of five years" which obviated "the need to project or to lag the explanatory variables" as in the previous studies and which they argued could "seriously bias the model results" (Mayo and Barrett, 1978, p. 87,83,86). To be comparable

with the other two models, they presented results that included only multilateral rescheduling. The sample for their comparable logit model included 48 countries, 28 instances of rescheduling by 11 countries, 2.5 times the observations in Feder and Just (1977b). They used statistical criteria to choose the variables to estimate the model, seeing whether dropping variables changed the predictive capability of model. The six variables chosen for the final re-estimated model were the ratio of debt outstanding to exports, international reserves to imports, imports to GDP, reserve position at the IMF to imports, gross fixed capital formation to GDP, and the percentage change in the consumer price index. Despite the decreasing real value of debts caused by the inflationary period of the 1970s, the model showed that countries would run into trouble, either because of key export price collapse (e.g. with Chile, Peru, Zaire, Zambia mentioned), or because of very low income with long-term debt problems (Bangladesh and Pakistan were identified) and those where economic mismanagement was a problem. In sum, problems were predicted across a range of countries.

One important difference with previous models was that they dropped the indicators that had previously been most important: the debt-service variables "because of their poor statistical performance and mixed results over a large number of estimations" (Mayo and Barrett, 1978). Given that the existing literature had described the debt-service ratio as "one of the most common rules of thumb for credit-worthiness evaluation" this was controversial (Feder and Just, 1977a, p. 27). Another important finding which broke from the past, was the inclusion of the inflation rate which ended up being significant: higher domestic inflation meant a likelier debt service difficulty (Mayo and Barrett, 1978, p. 85). Although one of the previous authors, Cline, praised EXIM over the use of logit analysis over his own use of discriminant analysis, he nevertheless held "serious reservations about the exclusion of the debt-service ratio in the EXIM bank model. This has been the single most important explanatory variable in past efforts including the Frank and Cline model" and disagreed with the rationale for its exclusion (Goodman, 1978, p. 99).

All three efforts were motivated to bring results that "are obviously useful" (Feder and Just, 1977a, p. 36) for international financial lenders and were developed in aide of guiding lending. All three models predicted increasing problems on the horizon. And yet, neither the empirical efforts underway, nor their pessimistic prognostications were disclosed as part of the political debate between debtor and creditor countries taking place in UNCTAD (Laskaridis, 2021). While the importance of developing models for policy was clearly stated, the knowledge these empirical efforts generated did not convince the creditors to change

course with respect to better means to resolve debt crises. Despite three models predicting growing repayment difficulties to continue, policy makers did not change course. For the EXIM bank, the model would directly feed into their lending. All three efforts were motivated to bring results that "are obviously useful" (Mayo and Barrett, 1978, p. 87). This would bring about a broadening of application of these new techniques to assess repayment prospects, and not an abandonment of its qualitative approach completely, but rather an approach that would combine qualitative techniques and econometrics. These studies found broader reach in the 1970s. The Overseas Development Council applied both the Cline and the Feder and Just model to 1976-77 forecast data for 25 countries. Models were seen as providing "a background" from which further study would be warranted. The different results found by the models shows that the efforts to develop predictive models stumbled across numerous obstacles to do with specification, and would assume certain structural aspects of the world economy to stay the same (Angelini et al., 1979).

4. Reorientation across the financial sector

While domestic credit ratings came about at the turn of the twentieth century, it was not until the globalisation of international capital markets in the 1970s that this effort of global ratings expanded (Sylla, 2002). This developed into country or sovereign risk analysis but during the 1970s was common ground across development actors and financial institutions concerned with repayment prospects. The effort to improve on techniques to guide lending gained pace as private as well as public financial institutions developed in-house ways to assess country-risk and their exposures. Providers to the financial sector such as popular investment magazines also contributed. A crucial catalyst in furthering the analytical discussions and encouraging the cross-institutional dialogue was EXIM Bank, whose objective was to promote US exports by supplying credits, guarantees and insurance, on hard terms. They had longer experience than private actors in lending to developing countries, even as their exposure, like that of private lenders, increased greatly during the 1970s. Export credits on hard loans were a frequent source of problems developing countries sought solution to. A great effort to reorganise EXIM during the latter half of the 1970s took place with a view to improving its portfolio and credit exposure analysis. Beginning in 1976, EXIM re-oriented its vision, its practices, and systems in place in order to advance risk management overall. As no-one really knew how the private banks were evaluating their rapid increase in foreign loans, EXIM Bank actively opened up a common ground for exchange.

The Federal Reserve begun to conduct investigations into how banks monitored their foreign lending (Sargen, 1977) with the Committee on Foreign Lending of the Federal Reserve System conducting informal surveys in 1977. It found that US banks "are devoting considerable resources to improving their country analysis" (Angelini et al., 1979, p.135), confessing their "own ignorance", as banking techniques were "not generally known" (Blask, 1978, p. 66). EXIM bank also surveyed 37 commercial banks about the organisation and technical aspects of managing their foreign loan book. It turned out that most banks were actively seeking new techniques for country appraisal.

The results of their survey surprised EXIM: 11% had no procedures in place, and the remaining 89% used a range of techniques, from fully qualitative to formal checklists (Blask, 1978). The qualitative approach relied on a country report which provided an overview of economic and political developments in the country they loaned to. No comparisons or rankings were possible. The most widely used 'structured qualitative' approach had a uniform format applied across countries, including specific economic statistics to be compiled; it lent itself to some kind of summary statistic including projection of a future trend and the standardised format facilitated cross country comparisons. The most quantitative approach was the checklist system, used by approximately 14% of banks surveyed. The end result of this approach was an overall assessment of economic performance that was summarised in a single letter or number. The accuracy of the summary score could be evaluated in terms of its performance, even though, only one bank in fact did check its performance. Only one bank was actively experimenting with more advanced quantitative techniques (Blask, 1978, p. 69). EXIM itself, as a follow-up to its survey, took it upon itself to test the banks' existing system and its own checklist approach to ascertain how effective they had been in predicting cases of default. Out of the seven checklists tested, only one was partially successful, and overall their predictive ability was poor. The reason EXIM cited was that inclusion of criteria and variables was arbitrary, bolstering their view that empirical studies (examined in Section 4.2.1) which employed "sophisticated mathematical techniques" avoided cherry-picking variables (Blask, 1978, p.69). This is not to say that they ignored the drawbacks of the checklist method, such as the fact that empirical models were "time consuming, expensive, and have their own limitations" (Blask, 1978, p. 69).

The use of these tools varied widely within the banks. Regardless of the method employed, the most common use of these studies was to provide briefings to senior management. They were, in combination with other factors, used to help determine limits on country exposure, but not in terms of hard ceilings. Further still, these methods were not

used, in any instance, to set the terms of the loans to match repayment capacity: "none of the banks in the survey use the country evaluation results in determining interest rates" (Blask, 1978, p.70). The rationale provided was that loans, as products tailored to each client, required a unique determination based on a variety of factors. In contrast, EXIM bank incorporated the results of its own model in a far more instrumental way, by using to guide setting of insurance and guarantee fees.

Financial journals, writing for the financial sector, also developed their own techniques. The first popular financial journal to do this was *Euromoney*, which published a simple ranking mechanism in 1978 based on countries' average weighted spreads presented in an annual country risk league table (Bance, 1978). This credit rating system tried to capture how changing market conditions would be reflected in each country's spreads. They converted their numerical data into a system of seven stars, covering initially twelve countries, and showed that since 1976, spreads had fallen and maturities increased in a small number of countries (see Appendix I). This approach provoked outcry by many of its readers as correspondents objected to its calculation (Heffernan, 1986, p. 31). For instance, a Canadian IMF staffer joked that his country was ranked under others he thought his country's credit rating far exceeded in the Euromoney system. General outcry prompted *Euromoney* to revise its methods of calculation some years later (in 1982).

Institutional Investor was the second financial press provider to set up a country risk rating table, first compiled in September 1979 (see Appendix II and III). This took a different approach to its competitor and used a questionnaire sent to bankers to grade creditworthiness on a scale of zero to ten. "In all, 1010 banks responded to our questionnaire, which was mailed at year-end. … Bankers were not permitted to rate their home countries" (Institutional Investor, 1980). Answers were weighted "using an Institutional Investor formula that properly gives more weight to responses from banks with the largest worldwide lending exposure and the most sophisticated country analysis systems". Although they praised it for being "the most comprehensive and representative sampling of bankers' views on country creditworthiness in existence today" this yielded public outcry (Institutional Investor, 1980, p.64). The public was left in the dark about how the weighting took place, it was simply called the 'banker judgement approach', but nevertheless, they reported sensationally on what bankers thought. That the United States was not ranked first was called "ratings' biggest bombshell" and a "telling sign of bankers' jitters" (Institutional Investor, 1980, p.64). By the third time round, the magazine reported how countries slid up and down the ranks. In September 1980, a short period before the onset of the debt crisis, they reported on Mexico's

oil wealth that "pushed it up three places" and exclaimed, that "the region that can boast the most success stories in the past year undoubtedly is Latin America. Leading the list is Peru, which in the past year improved its rating by nine points, more than any other country"… while also congratulating Argentina and Chile which also rose up their ranking (Institutional Investor, 1980, p. 286). This revealed how the short-sighted approach encouraged pro-cyclical lending booms. The authors were well aware that "there are, of course, a number of ways to look at the likelihood that a country will default on it debts" (Institutional Investor, 1980, p. 282). *Euromoney* attacked *Institutional Investor* arguing that the rating based on the survey is incongruous with the terms the countries commanded in the market. "what bankers do is more significant than what they say". The debate about methods trickled into the central pages of *Institutional Investor* about the varied viewpoints on how the broader financial community judged the two rankings.

5. The 1977 EXIM Sponsored Conference

With all these developments taking place, the EXIM Bank sponsored a large Conference on techniques to evaluate developing country debt in April 1977, in between UNCTAD IV and UNCTAD V. The conference was chaired by Stephen Goodman, the Vice President of Policy Analysis at the EXIM Bank. An economist from Yale, who prior to EXIM directed the Central Intelligence Agency's analytical work in trade and finance (Goodman, 1978, p. 101). The importance placed on this issue was reflected in the conference participants: he gathered representatives from the US Treasury Department (Anthony Solomon), the Board of Governors of the Federal Reserve (Henry Wallich), representatives from private banks, economists developing new quantitative techniques within institutions like the IBRD and the IMF, as well as academic economists working on debt issues, such as Charles Kindleberger and Robert Aliber. There was the feeling, commented on by Cline, that "the amount of quantitative work, especially within the banks, seems to leave something to be desired" (Eccles et al., 1978, p. 98). While each bank must "have its own compass to chart the misty waters of international finance", the president of EXIM bank stated that despite efforts in country risk analysis, "overall the record is spotty". Given the increased exposure "much works needs to be done" (Dubrul, 1978, p. 57).

The participants debated the relative merits of the quantitative technique. For the bankers, their efforts were motivated by finding ways to distribute risks of the bank on a country-by country basis. A representative form Morgan Guaranty noted that maximum exposure limits were introduced in the late 1960s, and computer system changes were expensive but

underway.While the idea that productivity of investment was the central element that could prevent debt servicing problems from arising, it was thought that there were no good ways to integrate this into a quantitative technique developed by the banks (Thornblade, 1978, p. 73)

Adopting a checklist system was a way to provide "a systematic first step in the process of selective international lending" (Thornblade, 1978, p. 80). What could the checklist approach really achieve? "Its best use is really as an early warning model device on a country by country basis" (Eccles et al., 1978, p. 98). Nevertheless, this too may not be good enough, as the Royal Bank had eliminated their checklist years ago to invest in a broader mathematical model. One of their representatives warned that "before anyone attempts to construct such a model, he should keep in mind that he is embarking upon a very expensive project" mentioning that his bank spent $100 000 to develop such an analytical tool (Eccles et al., 1978, p. 97-98). Other banks tracked developments on general measures, like level of development, GDP per capita, growth rates of income or exports, variations in export prices; as well as a measure of the debt burden, the "familiar debt-service ratio". All these techniques which looked at past indicators were essentially backward looking. The Royal Bank participant mentioned this clearly: "having dealt with creditworthiness for some time ... I am very cool to the checklist approach… the early-warning system leaves me very cool indeed, because it is essentially backward looking" (Eccles et al., 1978, p. 96).

The difficulties discussed were not only methodological. Practical difficulties included access to data. "Perhaps the major area for improvement in creditworthiness analysis today is not in the methodology, but rather in the data base" (Eccles et al., 1978, p. 94). One of the World Bank contributors mentions that most analyses rely on the data collection efforts of the World Bank through its Debtor Reporting System (Saxe, 1978, p. 33). Despite enormous efforts into its improvement and extension, as done by Avramović and his team, the author mentioned that there were significant exclusions that prohibited accurate description. Did the data really reflect the changes taking place? Excluding short-term debt led to great uncertainties. Countries refinanced long term into short term, which would indicate a reduction of long-term debt without any knowledge that another type of debt, short-term, has increased, yielding wildly off-mark conclusions. For this, among other reasons, he insisted that aggregate size on countries' borrowing is "essentially meaningless concept and number" (Saxe, 1978, p.35). He also made a point as if to dispel assumptions otherwise, that the debt analysis undertaken by developing countries themselves is "as intelligent" as the sophisticated lenders in developed countries (Saxe, 1978, p.35). The World Bank participant clearly stated that the IBRD held "no set formula for creditworthiness analysis", and

procedures were constantly modified. “Our experience that there is no adequate checklist or formula which takes into account all the relevant variables; such techniques can be no more than starting points for country evaluation” (Holsen, 1978, p. 91). With “no substitute for an informed judgement based upon careful analysis of the economic condition and prospects of the borrower” the World Bank participants did not specify particular analytical techniques or tools (Holsen, 1978, p. 93).

One of the factors that fed into deciding the interest rate was the Bank’s average costs of borrowing the year before a loan is made (Holsen, 1978, p. 89). The rates of return of projects were not what determined loans, given that many projects did not offer good financial rates of return. Given the difficulty of these calculations, the bank increasingly placed a strong emphasis on inadequate policies and economic management. This came down to “keeping the prices right” (Holsen, 1978, p. 90) as an indication of whether borrowers have the right policies in place. The World Bank saw its role as not simply measuring creditworthiness, but actually having a direct effect on improving creditworthiness through the use of conditionality. “Thus, we are concerned with improving as well as measuring creditworthiness” (Holsen, 1978, p. 93). With debt repayment, according to the World Bank, boiling down to savings, and the ability to transfer them abroad, the data they examined included trends in the global economy, debt evolution and debt service burdens, as well as a judgement on the ability of a country to adjust. “The only thing we can be certain of is that the scenarios in our carefully worked-out projections will be wrong in some important aspects. What then becomes important is the ability of a country to adjust to these unknown future events” (Holsen, 1978, p. 91). “The judgement about management is essential because no lender … is ever the only lender… although we make quite sophisticated projections as part of our creditworthiness analysis, these have to include assumptions about taking on debt from sources over which we have no control” (Eccles et al., 1978, p. 95) and hence the emphasis was whether borrowers were acquiring new debt in a “responsible manner” (Eccles et al., 1978, p. 95). This brought out the emphasis on “management of the economy” and the need to “get a feel as to whether that country is well managed or not” (Eccles et al., 1978, p. 95). This is because, they argued, “problems of external financial instability often are the result of internal financial instability which sooner or later “spills over” into the balance of payments”, and this therefore led them to place a lot of importance on the ‘most widely used’ indicator which is public-sector deficit as a percentage of GDP (Holsen, 1978, p. 93).

The World Bank boasted about the level of its internal expertise as compared to the private financial sector, which was seen to compensate for the lack of formal method. The

World Bank generally dealt with "numbers of economists per country, whereas commercial banks usually talk of the number of countries per economist" (Eccles et al., 1978, p. 95). Bank loans take years to prepare, as opposed to quickly raised Eurocurrency loans. Country economists monitored the borrower's position and prospects, other economists specialised in commodity markets, others maintained the debtors reporting system and others still examined the overall loan portfolio of the Bank and the distribution of risks.

The issue of broader policy coordination across actors and the role of the IMF was also discussed. The US Treasury representative stated that the US had already decided on its approach: stabilization and adjustment of international payments bringing down OPEC surpluses, while focusing on adjustment in poorer countries "to lay a basis for later growth" with "official financing on a conditional basis to encourage this adjustment" (p. 30). To do this, the US considered "significant increase in IMF resources, which, if agreed, could be a major support on all of the points I have made." Overall, the US threw its weight behind the Fund with the US representative saying that they "strongly support the IMF's efforts in the areas of financing and in the promotion of needed stabilization and adjustment" (Goodman, 1978, p. 30). The ability of the IMF to judge the "adequacy or appropriateness of fiscal, monetary, and foreign-exchange rate policies, as well as the adequacy or appropriateness of external payment restrictions and other balance of payments policies" and able to do so "technically and nonpolitically", was a core component of debt management and an important contribution to the decision-making process of private banks (Friedman in Goodman (1978). Irving Friedman, formerly of both the IMF and the World Bank, but now in the senior management of a private bank, urged for coordination with the World Bank which "may be the hardest thing in the world to do" but together would "be better able to judge what is good management (Goodman, 1978, p. 22). Henry Wallich from the Federal Reserve also placed his hopes on better collaboration between the IMF and commercial banks in the future. "The borrowing country should not be able to look to the bank as a means of circumventing the conditionality that the IMF has attempted to establish. The banks, on the other hand, should not look to the IMF as a bail-out from injudicious loans" (p. 17). Other senior bankers commented on how the historical conjecture warranted closer relation between private banks and the IMF. Robert Slighton, Vice President at Chase Manhattan Bank, formerly a Research Associate at RAND, and intelligent officer for Economics at the CIA and in the Treasury, saw that "The commercial banking system is desirous of cooperating more closely with the IMF than it has in the past. If there is insufficient cooperation, it is not because of an unwillingness of the commercial banks to

seek the IMF's point of view, but, rather, because of the lack of a convenient mechanism for that contact to be made. I am certain that we will see some such mechanism developed in the near future" (Goodman, 1978, p. 49). Shortly after the EXIM Bank Conference in April 1977, the RAND corporation published a survey paper reviewing the state of the art of assessing debt servicing capacity and implications for policy, "as a service to its professional staff" rather than being the product of "fulfilment of Rand's contracts of grants" (Soesastro, 1977, p. 2). What can be drawn from the Conference is that senior members of US economic policy making, commercial banking management, intelligent services and development institutions were actively interested and concerned about the rising vulnerabilities of the growing exposure in developing countries.

6. Discussion and Conclusion

The efforts by developing countries to propose resolutions and betterment to the situation were repeatedly refused by creditors. A close examination from UNCTAD I to UNCTAD V and related fora reveal the painstaking and gruelling efforts to alleviate and address debt repayment difficulties, which were met with minimal concessions throughout the fifteen years up to the eve of the 1980s debt crisis. In UNCTAD conferences, debtor countries called for a thorough examination of the causes of debt repayment difficulties and an investigation into how the debt was contracted. Developing countries saw similarities in the international conditions afflicting them, pointing to the external and structural causes of repayment problems. They argued for general debt relief and engaged in a longstanding attempt to establish overarching and commonly agreed guidelines to guide rescheduling. This was a means to safeguard equal treatment of countries in similar economic circumstances. They argued for economic and technical analysis as a means to safeguard from political mishandling and indicated that debt rescheduling should rely on economic factors alone condemning the use of non-economic factors to guide restructurings and the deployment of debt problems to apply political pressures. This is developed in further detail in Laskaridis, (2021).

The use to which economic analysis could be put and how it related to institutional form of crisis resolution varied. The role of economic analysis was shaped by the desired format of restructuring of different groups (creditors and debtors). This had become increasingly reliant on a short-term financing gap calculation by the IMF which fitted a short-leash, liquidity and balance-of-payments view of repayment problems. With all the difficulties involved in

calculations of capacity to repay, creditors increasingly emphasised debt repayment problems as largely balance of payments problems arising from domestic mismanagement.

By setting the role and form of economic analysis within its institutional, one can untangle how the role of economic analysis was shaped by the desired format of restructuring. For debtors, development of economic models could potentially safeguard equal treatment of countries in similar economic circumstances, and technical or strictly economic analysis could safeguard from political mishandling. Use of models could encourage that debt rescheduling should rely on economic factors alone condemning the use of non-economic factors to guide restructurings or the deployment of debt problems to apply political pressures.

Creditors however were interested in the use of technical tools only insofar as it aided decision-makers' judgement rather than displaced it. Creditors invested in their own predictive technical expertise. Even though in the political arena creditors were adamant that problems were negligible and existing mechanisms sufficient – they were evidently broadly concerned about debt repayment difficulties and hence all lending institutions, official and private, begun developing technical capacity in predicting servicing problems. Throughout the 1970s, across development agencies and private financial institutions, a common effort to ascertain the likelihood of default begun. The broad range of technical issues and divergences in the positions held between creditors were not raised in the context of the political debate at UNCTAD.

A range of empirical models was prompted from the growing exposure of international organisations, private and official sectors of creditor countries. These were focused largely on short-term predictors of default, and largely reliant on indicators that Avramović and his team had argued were ineffective guides for long-term repayment capacity. This empirical measurement effort by lending institutions tried to derive 'critical thresholds' of debt repayment difficulties. Thus until 1977 – at best – creditors were in fact entirely unprepared for the expansion of lending underway. The efforts into technical tools revealed their broad anxiety about the possibility of general problems despite their insistences about only isolated cases in the political debate. Despite their models showing increasing debt repayment difficulties, indicating that increasing numbers of countries will face servicing difficulties, creditors refused to act to alleviate or prevent these difficulties. Yet the build up of technical capacity was a protective feature against uncertainty, showing the very different objectives that tolls development could serve. For debtors for instance, development of economic models was a means to protect against political manhandling in renegotiations. At the same

time, for creditors, models were used to improve decision-making and maintain their room for manoeuvre.

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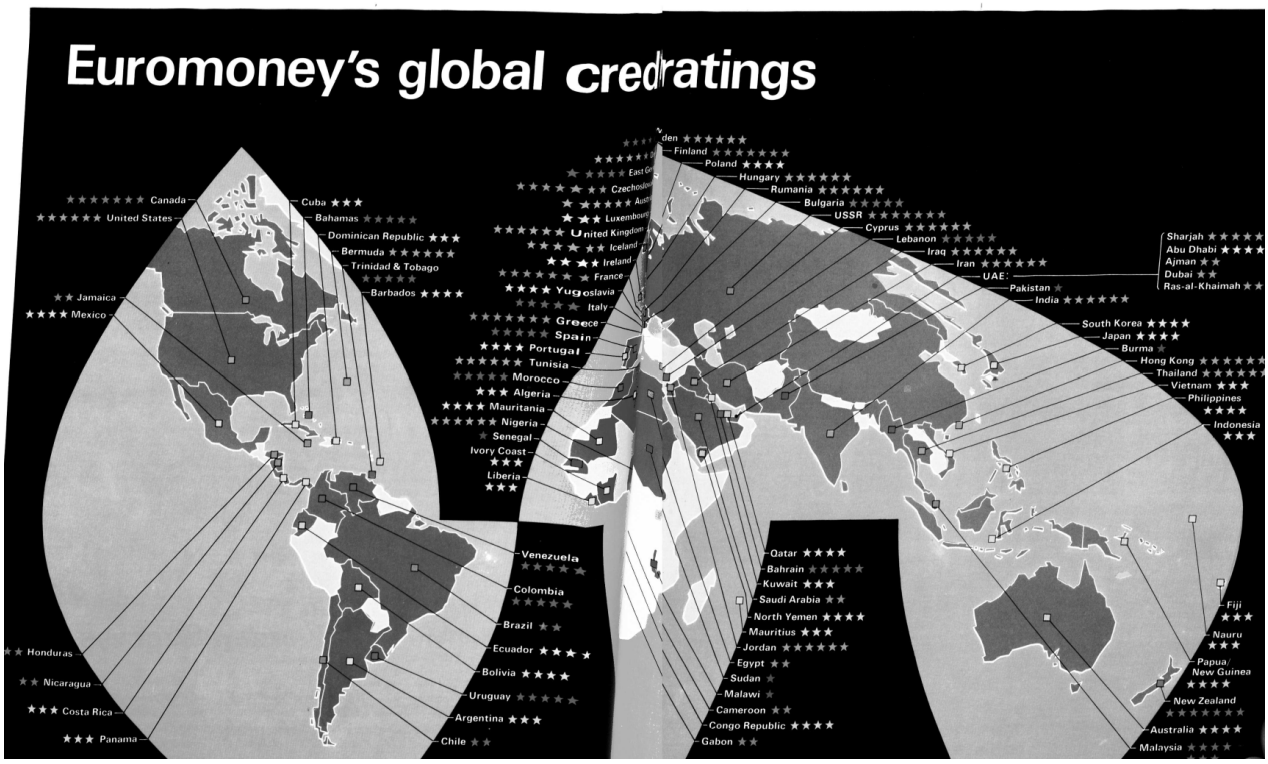
Appendix I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Dominican Republic
Bermuda
Trinidad & Tobago
Barbados
Jamaica
Mexico
Honduras
Nicaragua
Costa Rica
Panama
Venezuela
Colombia
Brazil
Ecuador
Bolivia
Uruguay
Argentina
Chile
Finland
Poland
Hungary
Rumania
Bulgaria
USSR
Cyprus
Lebanon
Iraq
Iran
UAE:
Pakistan
India
Sharjah
Abu Dhabi
Ajman
Dubai
Ras-al-Khaimah
South Korea
Japan
Burma
Hong Kong
Thailand
Vietnam
Philippines
Indonesia
Fiji
Nauru
Papua New Guinea
New Zealand
Australia
Malaysia
Qatar
Bahrain
Kuwait
Saudi Arabia
North Yemen
Mauritius
Jordan
Egypt
Sudan
Malawi
Cameroon
Congo Republic
Gabon
United Kingdom
Iceland
Ireland
France
Yugoslavia
Italy
Greece
Spain
Portugal
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Morocco
Algeria
Mauritania
Nigeria
Senegal
Ivory Coast
Liberia
Luxembourg

Appendix II Institutional Investor March 1980

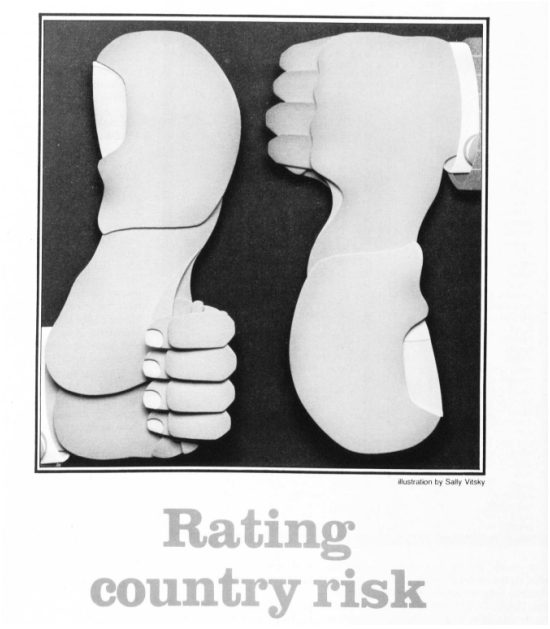

Illustration by Sally Vitsky

Rating
country risk

Appendix III, September 1980

Winners and losers

The six-month record

(March 1980 to Sept. 1980)

Who's up the most?

Country	Change in Institutional Investor credit rating
Peru	5.2
Zimbabwe	3.4
Finland	2.2
Congo	2.1
Chile	2.1
Iceland	1.9
Argentina	1.7
Egypt	1.6
Turkey	1.3
Angola	1.3
Mexico	1.3
Austria	1.3
Australia	1.2
Denmark	1.1
Malaysia	1.1
Italy	1.1
Paraguay	1.1
Ireland	1.0
Iraq	1.0
Norway	0.8
Republic of Gabon	0.8
Netherlands	0.8
Greece	0.6
New Zealand	0.6
Indonesia	0.6

Who's down the most?

Country	Change in Institutional Investor credit rating
Liberia	−14.0
South Korea	−8.1
Brazil	−5.4
Poland	−4.6
Israel	−4.3
Libya	−4.2
Tanzania	−3.6
Jamaica	−3.4
Saudi Arabia	−3.2
Morocco	−2.8
Bolivia	−2.6
South Africa	−2.6
Sierra Leone	−2.6
India	−2.6
North Korea	−2.4
Dominican Republic	−1.9
Cuba	−1.9
U.S.S.R.	−1.8
Venezuela	−1.8
Kenya	−1.7
Philippines	−1.6
Ivory Coast	−1.6
China	−1.5
Lebanon	−1.5
Panama	−1.5