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Modern Portfolio Theory Applied to the Secondary Market for LDC Loans: Comments

Having read Georg Junge's article in Finanzmarkt und Portfolio Management Nr. 4/1992 on the application of Modern Portfolio Theory (MPT) on the secondary market for developing country (LDC) debt, I cannot resist the temptation to comment from a practitioner's point of view, especially on the recommendation that bankers should apply Modern Portfolio Theory to the management of loans in general.

My first point relates to the risk measure Junge is using: price volatility. Volatility measured as standard deviation is a symmetric measure, that is prices of the assets must be able to go down with the same (or at least similar) probability and to the same extent as they go up. But unlike share prices, loan values usually remain stable over time (and definitely do not appreciate) except for price adjustments due to interest rate fluctuations if the interest of the loan is fixed rate. Under normal circumstances, that is without a default on debt service, volatility is therefore a rather unfit risk measure to analyse the risk involved in a loan portfolio, and to address interest rate fluctuations duration is probably the more appropriate analysis.

The price of a loan reflects (or should at least reflect) the probability that a country is able and willing to provide enough hard currency to service its debts, that is keeping interest payments and principal repayments current. A commercial banker perceives as risk primarily the danger that the borrower defaults and the debt service is somehow impaired. And when lending money, he does not really (and rightly so) bother how much prices may fluctuate after a default has occurred. It is the default risk which the banker wants to avoid. This is the case because in the normal course of events prices do not fall at all even under negative circumstances because shocks are absorbed by the debtor's currency reserves and borrowing capability or in the case of corporations by their equity. Diversification has thus to address only major events which eventually impair the debt service capacity and, unlike in the case of shares, does not need to take into account every minor event which has, in the case of shares, a direct impact on their price. The question arises whether diversification can reduce the default risk. It cannot really: no reasonable banker would under normal circumstances lend money to someone he expects to default which defines, of course, expected return. The default risk, however, represents the risk of a *change of the expected return*. Mean Variance Analysis, however, uses a fixed expected return when optimizing or adjusting a portfolio. And when looking at earlier attempts to tackle the default risk with the help of MPT which were made just before the outbreak of the international debt crisis [1] - Junge is by far not the first one to apply MPT to loan portfolios - one realises that correlations increase significantly in times of major shocks: though the macroeconomic performance of debtor nations might have a small correlation in normal times (when diversification is

not or is hardly necessary due to the lack of defaulting borrowers!), the correlation of the debt service capacity (or willingness) becomes 1 in times of major shocks in the case of most non-OECD countries. The four earlier Latin-American debt crises in 1825, 1876, 1914 and 1930 are rather striking evidence of this phenomenon as were the almost simultaneous problems of the LDC in 1982. MPT would not appear to be the right tool to mitigate risk under such circumstances.

I wonder whether Junge is right to use as the basis of his definition of return only price changes in the secondary market. To my mind, interest payments cannot be neglected as they might well be the dominant part of the total return of a discounted loan. Given that some of the loans will most probably never be (fully) repaid, interest is the crucial source of income for investors. But even if one accepts market prices as return for purposes of the analysis, they might have to be adjusted: Every rescheduling conferred new options to the creditors which eventually changed significantly the underlying asset, namely the loan. I mention only the Mexico rescheduling in January 1990 as an example: 90 % of the creditors opted to convert their loans into secured bonds either with a reduced interest rate or a reduced face value. Probably the market price of Mexican debt would have to be adjusted after the rescheduling.

Junge's analysis implies that the lenders would have had the ability to adjust their portfolio in whatever way they deemed fit. Though the secondary market became quite significant in 1989 and 1990, one should keep in mind, that the major lenders to Non-OECD countries were only about 50 banks worldwide. Unlike in a share market, there was no-one around to take up a significant share of the portfolios of these banks even at a low price. Most of the loan documents prohibit the sale of debt to non-banks, and some debtor nations insist on pre-approving even the acquisition of their external debt by banks which prior to such acquisition have not lent to the nation concerned. Debt to equity programs usually had a very short life and the transaction costs on the trade of loan-tranches are high. This makes the market very limited. Furthermore, the international creditor banks had a huge incentive not to dump too many loans on the market in order not to let the prices drop too far as due to the so called "portfolio contamination" they were increasingly forced for supervisory purposes to mark their loan portfolios to market prices. Most lenders, being in a rather weak financial position themselves, preferred to make provisions or to write down their claims slowly. And even where loans were disposed of, the initial lenders had in reschedulings to provide further loans to the borrowers until 1989. This obligation might have distorted the market price again, as the buyer of a loan did not necessarily assume the full burden of the discounted loan. Again, unlike in an efficient stock market there is a relationship between the major lenders and the borrowers. Banks (or their securities affiliates) which have maintained a significant part of their loans to a specific borrower such as Mexico are now the ones which lead manage the bond issues of Mexican issuers or are placing Mexican ADR's in the United States or do other lucrative business with the recovered debtor. This does not come as a surprise to the banks involved.

If I understand Junge correctly, he uses in his article the market price of medium to long term debt for short term outstandings as well, but concedes that this might be wrong. My first comment to that is, that there were major price differences in the period he analysed: Argentinean long term debt (GRA) was valued at one point at 17 % whereas the short term TCDF changed hands at above 80 % [2]. Further, it should be remembered, that short term debt was not independent of the reschedulings as Junge assumes. Short term debt was rescheduled in the case of Nigeria and Yugoslavia and in the reschedulings of Argentinean, Chilean, Mexican and Brazilian debt, lenders had the obligation to maintain short term lending limits, that is to renew short term lendings [3]. There were, however, hardly any defaults on short term credits such as trade credits and interbank facilities because they had be kept current as a conditio sine qua non for reschedulings of medium and long term debt. These facts might

significantly change Junge's analysis. To sum up, for ordinary loans, mean-variance analysis might not be the right analysis if seeking to determine the risk/return characteristics of a loan portfolio as the market price of the loans is and stays the face value except for interest rate changes in the case of fixed interest rate loans. For those, duration might be the much better tool. Where a secondary market develops, there is a special and usually unique work-out situation. An analysis developed for quite efficient stock markets might be over simplistic as a lot of specialities of the market should be taken into account. It has further to be kept in mind, that when there are heavy price discounts for a whole asset class in a secondary market such as the LDC secondary market, there must be some common cause(s) for such discount (that is for the default on the underlying debt). In more technical words, there is a high correlation between the performance of the debtors with regard to such causes. Once these causes fade away, correlation becomes less, and quite soon the secondary market will disappear, at least for those of the loans which are fully performing.

Footnotes

[1] WALTER (1981) and GOODMAN (1981).
[2] INTERNATIONAL FINANCING REVIEW (1989).
[3] For details of reschedulings of bank debt see INSTITUTE OF INTERNATIONAL FINANCE(permanent updates).

References

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GEORG JUNGE

The Case of Modern Portfolio Theory for Loans Reconsidered: A Reply

I welcome the comments of Markus J. Kroll concerning my article "Portfolio Approach and the Secondary Market for Developing Country Debt" in Finanzmarkt und Portfolio Management Nr. 4/1992. He correctly points out a number of practical and theoretical issues that arise when it comes to the application of modern portfolio theory to the management of loans. I agree with him that for ordinary loans the measurement of risk as price volatility is a problem. As I pointed out in my paper, price volatility does not necessarily reflect creditworthiness, and M.J. Kroll is right to emphasize that "loan values usually remain stable over time" and are subject to an asymmetric distribution. One could even go a step further and add that the definition of returns may already cause difficulties. - The contractual return of a loan is a rather complex structure. It varies with the maturity and may combine different sources of profits such as interest, fees, or gains from cross selling. Moreover, contractual