Developing a Practical Credit Risk Model for Bankers in the Case of Mortgage Loans Portfolio in Mauritius

Presented by Dr Indranarain RAMLALL

Dakar 6-8 June 2011

Broad classification of different types of risks

Credit Risk Modelling

- Credit risk modeling, why?
- Proactive risk management policies (FS).
- E.g. if there is evidence that younger people have higher probability of default, then there is need to adjust cost of loans for younger people-essence of sound credit risk management.
- Ultimate objective: Lowest level of NPLs.

Legacy-Previous Credit Risk Models & My Contribution

- Structural Models-Merton (1974)
  Reduce-form Models
- Both of them focus on modeling the probability of default.
- This is where I contribute to the empirical literature on credit risk.
- Focus on forces impounding on <u>Repayment Capacity</u> in lieu of <u>Default.</u>
- Main blessing: Easier to control repayment capacity (exante) rather than default (expost event).

Econometric Model

- $\mathbf{DSCR_i = \beta_0\, Tenor_i + \beta_1 MarginCover_i + \beta_2 Age_i + \beta_3 Cost_i + \beta_4 Arrears_i + \beta_5 TownDum_i + \beta_6 PublicDum_i + \beta_7 ConstructionDum_i + \beta_8 MarginCover_i * TownDum_i + \beta_9 TownDum_i * ConstructionDum_i + \varepsilon_i}$
- Where
- DSCR: Debt Service Coverage Ratio
- Tenor: Loan Maturity
- MarginCover: Security Margin Cover
- Age: Age of borrower
- Cost: Interest cost of the loan
- Arrears: Loan arrears
- TownDum: Locational dummy variable for the borrower
- PublicDum: Public employment dummy variable for the borrower
- ConstructionDum: Dummy variable where purpose of loan is for construction

Results

- Irrespective of the model considered, **margin cover** systematically occasions a positive effect, aligned with the fact that margin cover is indeed a risk management tool wielded by credit managers.
- Low economic significance noted in case of age, not really impacting on repayment capacity.
- Strong evidence in the case of **tenor** impacting on DSCR; positive effect corroborates the fact that they do affect repayment capacity.
- Negative effect of the cost of the loan also confirmed.
- Arrears are not found to be impotent.
- Dummies:
- Public sector dummy: Negative impact
- Construction dummy: Negative effect
- Town dummy: Impotent

Policy Implications

- Margin Cover serves as risk mitigation device, can be used procyclically in the financial system.
- Positive impact of loan tenor on DSCR signifies loan maturities adjustments following the US Subprime crisis in view of reducing financial casualties.
- Negative impact of cost of loans in some cases validates the bearish monetary policy approach clung during the financial crisis episode.
- Borrowers from the public sector exhibit poor repayment profiles signifies that the credit risk manager should diversify his portfolio by incorporating more creditworthy private borrowers.
- Extreme caution should be exercised in case of loans meant for construction purposes.

Thank You