

**Esquível M.L.** (FCT NOVA, UNL, Portugal) — **On a Stochastic Model for a Cooperative Banking Scheme for Microcredit.**

We propose and study a simple model for microcredit using two sums, with a random number of terms, of identically distributed random variables, the number of terms being Poisson distributed; the first sum accounts for the payments made to the *collective vault* by the participant and the second sum, subtracted to the first, accounts for the loans received by the participant. The process under study is the sum of the individual processes of a finite number of participants in the *collective vault*. Under a global independence hypothesis we show, by mean of moment generating functions, an easily implementable condition for the sustainability of the collective vault. That is, if, for all the participants and at any time, on average, the sum of the loans is strictly less than the sum of the payments to the *collective vault* then the probability of the *collective vault* failing can be made arbitrarily small provided the loans only start to be accepted after a sufficiently large delay. We present numerical illustrations of *collective vaults* for exponential and chi-squared distributed random terms. For the practical management of such a *collective vault* it may be advisable to have loan granting rules that destroy independence of the random terms. We present a first simulation study that shows the effect of such a breaking dependence loan granting rule on maintaining the stability of the *collective vault*.

#### REFERENCES

1. *Esquível M.L. and Mota P.P. and Pina J.P.* On a Stochastic Model for a Cooperative Banking Scheme for Microcredit (preprint).

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