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In this paper we seek to assess the ability of banks to withstand the effects of an increase in credit risk as a result of changes in the macroeconomic environment. To do so we estimate a credit risk model for each loan type as a function of four macroeconomic variables commonly used in the literature. Then, we forecast the dynamics of non-performing loans (NPL) and total loans in a stressed scenario in a time span of 8 quarters. Using these results, we quantify the effects of the macroeconomic shock on bank's performance indicators, such as the NPL ratio, the return on assets, and the capital adequacy ratio. The results suggest that most Colombian banks are able to withstand a large shock to economic activity. We also perform a reverse stress testing to quantify how much NPL should increase in order to bring the earnings before taxes to zero.