Box 1

Commercial Loans Provisions by Company Size

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Credit institutions (CIs) in Colombia provision their loans based on the regulations established by the Office of the Financial Superintendent of Colombia (FSC). Specifically, the FSC introduced the Credit Risk Management System (SARC in Spanish), a reference model for determining the minimum loan-loss provisions required for loans based on debtor characteristics, the loan transaction, and the credit cycle phase of the institution.[1]

This box focuses on one of the characteristics that determines the required level of provisions. Specifically, a brief analysis of the relationship between the amount of provisions and the size of the company in the commercial category is presented. The results suggest that the level of the provisions made by the CIs reflects a combination of regulation and internal risk analysis done by each entity. The CIs follow the pattern defined by the regulations that call for greater provisioning for loans to smaller companies and, in general, provision them in excess of what is required. These additional provisions also seem to depend on the size of the borrowers and is thus larger for smaller companies within each size category. This characteristic means that the method used by institutions to determine their level of provisions enables them to soften the impact of shocks that, like the one the Colombian economy went through recently because of the global pandemic, affect small companies particularly.

1. Calculation of the Minimum Regulatory Provisions for the Commercial Category

The FSC's plan mandates a minimum level of provisions for each loan equal to the value of its expected loss, which is calculated as follows:

$$EL=(EXP)(PD)(LGD),$$

where EL represents the expected loss, EXP the amount of credit exposure, PD the probability of default, and LGD the loss given default. The distinctive elements of this approach can be summarized in three points: 1) there are two phases: cumulative and decumulative; 2) the PD changes based on the phase, the days the loan is in arrears, and the size of the company; and 3) the LGD is a function of the number of days in arrears and the quality of the guarantees.

Based on the provisions model, companies must be classified into one of the three categories set out in Table B1.1 and the probability of default is established based on their size, credit rating, and phase in the plan. In general, companies that are larger and have better ratings are associated with a lower risk and, therefore, a lower probability of default. This is reflected in Table B1.2 which, given an AA credit rating, shows the *PD* values in the cumulative phase for the different company sizes.[2]

Table B1.1
Classification of Companies by Asset Level

Size	Asset threshold
Large	More than 15,000 SMMLV
Medium	Between 5,000 and 15,000 SMMLV
Small	Less than 5,000 SMMLV

Note: SMMLV refers to minimum legal monthly salary in effect.
Source: Basic Accounting and Financial Circular (Appendix 3, Chapter 2).

Table B1.2
Minimum Probability of Default in the Cumulative Phase for AA-rated Companies

Rating	Size	PI (percentage)
AA	Large	2.19
AA	Medium	4.19
AA	Small	7.52

Source: Basic Accounting and Financial Circular (Appendix 3, Chapter II).

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1 For further details, see Chapter II of the Basic Accounting and Financial Circular and its appendices.

2 Chapter II, Appendix 3 in the Basic Accounting and Financial Circular requires entities to assign a credit rating of AA, A, BB, B, CC and default to transactions. With respect to the factors that determine this rating, the number of days that the loan may be in arrears is established by regulation as a minimum criterion, so that the longer the arrears, the lower the rating must be. However, if there are factors that, in the bank's judgment, make a borrower more risky, the bank must take them into account when rating the loan.

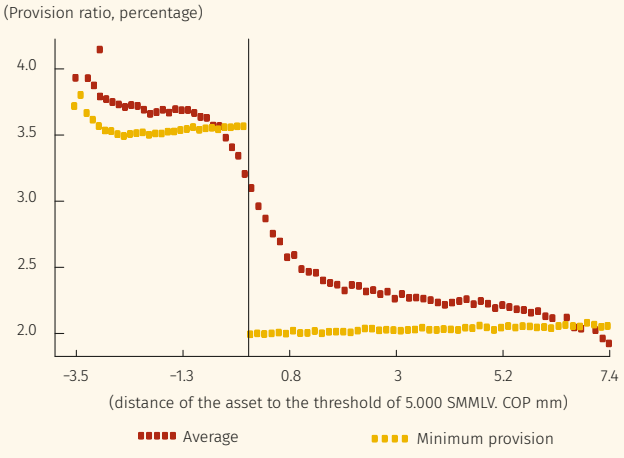
2. Relationship between Provisions and Company Size

In order to study the relationship between company size and regulatory provisions, the annual information on companies with balance sheets filed to the Superintendency of Corporate Affairs[3] and that also appear in the FSC quarterly credit registry that contains individual information of active loan operations by debtor is used.[4] Since the probability of default also varies depending on the loan rating, the analysis presented only considers AA-rated loans, so that changes in the probability of default are presumed to result primarily from the size of the debtor. In addition, the 2008-2016 period is studied to capture the cross-section characteristics of information while keeping in mind the fact that the plan was already fully implemented. Later dates are also excluded due to the stability of the sample and since, starting in 2017, the number of loans with the considered rating that is lower because of the increase in the credit risk seen as of that year in the commercial category.[5]

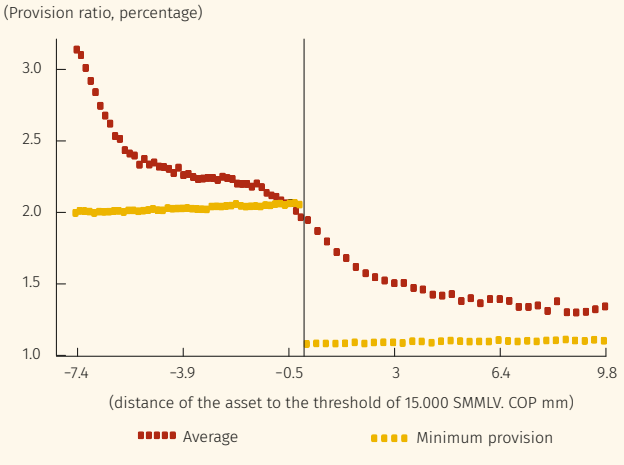
Graph B1.1 shows the average relationship between the provisions ratio, defined as provisions over loan amount, and company size that is near the threshold that separates small from medium-sized firms (panel A) and medium-sized from large firms (panel B). This ratio is compared to the minimum expected provisions by asset size.[6] The results of this comparison suggest that although the actual provisions follow the pattern defined by the regulation, they do so gradually[7] and, in general, remain above the required provisioning.[8] The existence of this buffer of additional provisions underscores the relevance of each financial institution's calculation of expected loss based on its internal risk analysis. Furthermore, this buffer also follows the pattern set by the regulation since it is larger for smaller borrowers in each size category.

Graph B1.2

A. Average Relationship between Provision Ratio and Distance to Asset Threshold for Small and Medium-size Companies



B. Average Relationship between provision Ratio and Distance to Asset Threshold for Medium-sized and Large Companies



Note: the red dots represent the ratio of the average effective provision ratio for different company size segments. The yellow dots indicate the average provisions ratio required by regulation. The provisions required are relatively constant, except for the discontinuous jump induced by regulation around the thresholds that separate small companies from medium-sized ones and medium-sized from large ones.
Source: SFC, authors' calculations.

3 In general, the sample of companies reporting to the SCA is composed of large companies measured by revenue or assets. Based on Decree 1074/2015, the companies with assets or income above 30,000 minimum legal monthly salaries in effect should report their balance sheets to this superintendency along with other criteria.

4 FSC form 341. This form shows the main features of the loan transactions carried out by CIs supervised by the FSC.

5 Due to the fact that the balance sheet information from companies is only available as of December of each year, observations from the second and third quarters of each year are excluded from the sample. Thus, a sample is built by cross-referencing the information from the credit registry with the firms' balance sheets with a time lag of no more than three months. This procedure is done to find a sample with an asset register that should be similar to the one seen by the lending entity at the time the PD was determined for each transaction. In addition, observations with registration problems or outliers were discarded.

6 The latter is defined as the result of multiplying the regulatory PD given the asset of the debtor and its rating, and the registered LGD. Even though the regulatory PD is constant for each size of company, the minimum loan-loss provisions may vary due to changes in the LGD.

7 A specification of regression discontinuities was used, as proposed by Calonico et al. (2014), to confirm that the loan-loss provision function does not show a discontinuous change around the firms' classification thresholds.

8 Segments near the thresholds where the actual loan-loss provisions are lower than what is required could be explained either by the time lag between the credit information and the balance sheet of the companies, or registration problems.

3. Final Considerations

To conclude, the level of provisioning undertaken by the CIs reflects a combination of the parameters stipulated by regulation and each entity's internal analysis of the credit risk. The rules induce higher provisioning for loans to smaller companies, and the CIs set up additional provisions for them since they recognize that this type of debtor imply greater risk. These insights take on relevance at the current context since, as has been documented in different studies[9] related to the impacts of the Covid-19 crisis on the non-financial corporate sector, the smaller companies are likely to be the most affected by the shock of the pandemic and, therefore, so are the CIs most exposed to this type of business. This suggests that at the beginning of the crisis, banks exposed to these companies had a cushion of provisions for their loans that allowed them to soften the shock to their financial statements. In this regard, the decreasing provisions ratio in terms of assets, established since 2007 by the SFC, is in line with the expectations of material impact on smaller companies in the current crisis.

References

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9 See Banerjee y Hofmann (2020), Carletti et al. (2020), and Chapter I of the April 2021 GFSR.