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## **I. Introduction**

The recent international financial crisis has brought to the forefront the need to improve financial regulatory and supervisory frameworks. In particular, compliance with international regulatory standards in developed countries proved inadequate to contain excessive risks taken by individual financial institutions and those generated by the financial system as a whole.

Although the distinction between risks at the individual financial institution level and at the financial system level is not new (and certainly well recognized by a number of Latin American countries, as will be discussed below), the crisis made it evident that most regulatory frameworks around the world did not adequately incorporate these differences. Indeed, the resurgence of the terms *micro prudential* and *macro prudential* regulations is a reflection of the renewed awareness of the need to deal with both idiosyncratic (micro) and systemic (macro) risks.

This policy note focuses on provisioning practices in Latin America, a supervisory tool that if well designed can contribute to strengthen both micro and macro prudential regulation. For that purpose the rest of this note is organized as follows: Section II briefly explains the importance of an adequate regulatory regime for provisioning requirements. Based on recent development in the literature and recommendations from international regulatory-setting bodies, the section identifies key features of an adequate provisioning regime. Section III describes the most salient characteristics of provisioning regimes in Latin America. Information on these features was obtained through a survey to regulators from a sample of countries. Section IV constructs an index to assess the quality of the provisioning regimes in the selected countries. The construction of the index is based on recent analysis and discussions regarding the desired characteristics of regulation for provisioning requirements. Section V concludes the paper.

## II. What Constitutes Adequate Provisioning Requirements?

Following an established consensus, loan loss provisions requirements are a regulation designed to buffer the expected component of the loan-loss distribution. In contrast, minimum capital requirements should serve as a buffer for the unexpected losses. However, despite the differences provisioning and capital are quite interrelated: An inadequate classification of loans and a poor system of provisioning will result in an inadequate computation of capital.

But, what is an *adequate* regulatory framework for provisioning? Up to the recent financial crisis, such a system was generally defined as one that complied with good *micro prudential recommendations*. Since the crisis, the consensus has moved towards recognizing that, to be effective, provisioning also needs to satisfy *macro prudential recommendations*.

Micro prudential regulation is based on the view that banks need to correctly assess the risks that they are taking on their individual balance sheets. The fundamental reason for regulation is that in case of severe banks' difficulties the resources from a deposit insurance fund might need to be utilized. Most deposit insurances are funded (explicitly or implicitly), at least partially, with public funds. Micro prudential regulation aims at minimizing the cost to the taxpayers arising from the utilization of deposit insurances. Since the best way to minimize these costs is to insulate banks from adverse shocks, the regulatory framework focuses on requiring banks to build buffers against expected and unexpected shocks.

From this perspective, an adequate provisioning system requires that loans and other assets are correctly classified according to their risk characteristics and that the higher the riskiness of the asset, the higher the provisioning requirement. Moreover, since a number of assets, other than loans (such as contingent claims) also have a computable loss distribution, provisioning should not be restricted to loans only.

Classification of loans according to risk, for provisioning purposes, varies greatly across countries. As will be discussed below, Latin America is not an exception. While banks in a

number of countries follow a pre-determined scheme of provisioning requirements according to the type of loan (such as consumer, corporate, mortgage or microfinance), others use the banks' internal models to assess the riskiness of each loan (or group of loans). In any event, a strong recommendation from sound micro prudential regulation is that the assessment of risk needs to be forward looking in that it should take into account the most important factors that determine the expected component of the loan-loss distribution. A system of provisioning based only on the number of days a loan is in arrears is not adequate.

In spite of this recommendation, a large number of countries around the world follow an *incurred loss* provisioning system; that is, provisioning only occurs when a loan is in arrears. Laurin and Majnoni (2003) provide a good account of bank loan classification and provisioning practices in selected developed and emerging countries (at least until before the financial crisis).<sup>1</sup>

The approach of *macro prudential regulation* differs from that of micro prudential regulation. While different, the macro prudential approach aims to complement rather than substitute good regulation under the micro prudential approach.

In contrast to micro prudential regulation, whose goal is to minimize the costs to taxpayers from banking crisis resolution, the goal of macro prudential regulation is to minimize the *macro* costs of a crisis; that is, to limit the eruption of credit crunches derived from a systemic banking crisis. By avoiding credit crunches, macro prudential regulation aims at minimizing contractions in economic growth. Under this view, aggregate risk depends on the collective action of financial institutions. For example, uncoordinated behavior by individual banks can lead to the formation to asset bubbles that are detriment to the macro economy. Likewise, recovery of capital ratios after a crisis might lead to sharp credit contractions and severe declines in economic activity.<sup>2</sup>

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<sup>1</sup> Also see Laeven and Majnoni (2003)

<sup>2</sup> See Borio (2009) and Hanson et al (2010)

From this perspective provisioning needs to be designed to avoid pro-cyclicality.<sup>3</sup> For that purpose, an automatic rule that triggers an increase in provisioning requirements when credit growth and/or economic growth are assessed to be excessive should be in place. In essence the rule would allow banks to accumulate loan-loss reserves that can be used in bad times. This methodology helps to prevent credit crunches since in bad times, when non-performing loans rise sharply, banks will not be forced to increase regulatory provisioning and will, therefore, be in a better position to continue lending. Implementation of this type of regulation was pioneered by Spain in 2000, under the name of *dynamic provisioning*.<sup>4</sup> Since then, a number of Latin American countries have followed suit.<sup>5</sup> In 2009, after the eruption of the international financial crisis, the Financial Stability Forum recommended the establishment of dynamic provisioning.<sup>6</sup>

Another important recommendation from the macro prudential approach that affects provisioning requirement is the treatment of capital requirements. Since the goal of the macro prudential approach is to avoid credit crunches, restoration of risk-weighted capital to asset ratios in bad times needs to be done through increases in “good quality” capital rather than through asset contraction. In the macro prudential approach good capital is basically limited to common equity. Indeed, the recent recommendations on capital requirements by the Basel Committee on Banking Supervision (the so-called Basel III) asks banks to significantly increase their holdings of common equity (as opposed to preferred stocks and other types of bank’s liabilities previously accepted as capital under Basel I and II).<sup>7</sup> Thus, a good provisioning system should not include provisions in the computation of capital.<sup>8</sup>

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<sup>3</sup> In 2010, the Basel Committee on Banking Supervision recommended the establishment of countercyclical capital requirements. See Basel Committee on Banking Supervision (2010)

<sup>4</sup> See, Saurina (2009) for an analysis of the experience of Spain with dynamic provisions

<sup>5</sup> See Wezel for a review of the experience in Uruguay and a comparison with other Latin American countries that have implemented dynamic loan loss provisions.

<sup>6</sup> See Financial Stability Forum (2009)

<sup>7</sup> See Rojas-Suarez (2010) for a discussion on how Latin America fares regarding the new capital requirement proposals under Basel III.

<sup>8</sup> References to loan loss provisions in the initial 1988 Accord (and its Amendment in 1991), the so-called Basel I were made only to specify the conditions under which loan-loss reserves could be included as Tier 2 capital.<sup>8</sup> To date, banks in the United States follow Basel I.

In both, the macro and micro prudential approaches, the presence of a strong supervisory authority with independent powers to execute regulations and intervening banks is essential.

### **III. Salient Features of Provisioning Regimes in Latin America.**

For the purpose of identifying the most important characteristics of provisioning regimes in Latin America we conducted a survey to supervisors and regulators in seven countries. The countries included in this analysis were Argentina, Brazil, Chile, Colombia, Ecuador, Mexico and Peru and was undertaken during the first half of 2010. The survey covered a variety of features of provisioning regulations covering credit risk provisioning as well as other types of provisions, such as provisions on the investment portfolio, contingent claims, other assets, dynamic provisions, among others.

Table 1 summarizes some of the main findings of the survey. Several interesting features stand out. The survey points out that there is no unique system of provisioning in Latin America. In some countries, such as Argentina and Mexico, the computation of provisioning for several types of loans is based on a risk classification system that only takes into account the number of days a loan is in arrears. In other countries, however, provisioning is based on forward looking models incorporating several risk factors.

Some countries have adopted dynamic provisions. In our sample Colombia and Peru have done so, adding to other countries in Latin America such as Bolivia and Uruguay. The methodologies used to compute these provisions differ across countries. While in Colombia, dynamic provisions follow more closely the Spanish model, where dynamic provisions are computed according to the behavior of each bank's credit growth performance, in Peru, they follow a macroeconomic rule. In the case of Colombia, the provisioning regime switches to a higher provisioning requirement when a bank's credit growth exceeds a pre-determined threshold (which computes the average growth over a period of time), while in Peru the regime is activated when GDP growth exceeds a threshold.

Most countries have opted to maintain some type of constant or general provision, while others have chosen not to do so, or have combined the general provision with the counter cyclical or dynamic one. Argentina, Chile, Ecuador, and Mexico are cases in which the entire loan portfolio is subject to a constant provision. In Colombia only microcredit and mortgage loans are subject to a general provisioning. In this country, the computation of provisioning requirements for consumer and commercial loans is similar to the methodology used in Brazil for all types of loans. In Brazil, there is not a constant provision requirement; instead provisioning is based the on a classification of loans according to risk derived from banks' risk models. By capturing a minimum level of risk for every type of loan, the models assign a minimum level of provision for all types of loans.<sup>9</sup> In Peru there is a general provision that varies according to the counter cyclical one.

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<sup>9</sup> Although the risk classification system in Brazil includes one category where a loan is considered riskless; that is, requiring no provisioning.

**Table 1: Survey Summary**

<b>I. Credit Risk Provisions</b>	<b>Argentina</b>	<b>Brazil</b>	<b>Chile</b>	<b>Colombia</b>	<b>Ecuador</b>	<b>Mexico</b>	<b>Peru</b>
In the computation of loan loss provision, does the regulation differentiate by type loans? (for example different requirements for consumer loans vs commercial loans?)	Yes	No	Yes	Yes	Yes	Yes	Yes
In case the answer is <b>NO</b>							
How many risk categories are established for computing loan loss provisions?		9					
What is the minimum days of payment arrears that are needed to start computing loan loss provisions on a loan?		15					
After how many days is a loan in arrears provisioned 100%?		180					
Are there criteria other than number of days in arrears used to estimate the default probability of a loan and compute loan loss provisions?		Yes					
What additional criteria are used?		See below					
Does the regulation allow for the use of collateral or guarantees to mitigate credit risk?		Yes					
In case the answer is <b>YES</b>							
Are there <b>specific</b> loan loss provisioning rules for:							
Consumer loans	Yes		Yes	Yes	Yes	Yes	Yes
Commercial loans	Yes		Yes	Yes	Yes	Yes	Yes
Microcredit	Yes (Ar1)		Yes (Ch1)	Yes	Yes	Yes	Yes
Mortgage loans	Yes		Yes	Yes	Yes	Yes	Yes
How many risk categories are allowed for the computation of loan loss provisions for:							
Consumer loans	5		applicable	6	5	10	5
Commercial loans	5		10 (ch2a)	6	5	9	5
Microcredit	5		Not	5	5	10	5
Mortgage loans	5		Not	5	5	9	5
How many days of payment arrears are needed to start computing loan loss provisions on a loan?							
Consumer loans	31		Not	0	15	0	9
Commercial loans	31		Not	0	30	30	60 (Pe1)
Microcredit	31		Not	0	5	0	9
Mortgage loans	31		Not	0	90	30	30
After how many days of payment arrears are credits provisioned by 100%?							
Consumer loans	366		180	90	120	126	120
Commercial loans	366		730 or 1095	150	270	240	365
Microcredit	366		730 or 1095	120	90	126	120
Mortgage loans	732		1460	540	730	210	365
In addition to the number of days a loan is in arrears, are there other factors used to estimate the default probability of a loan and compute loan loss provisions?							
Consumer loans	No		Yes	Yes	Yes	No	Yes
Commercial loans	Yes		Yes	Yes	Yes	Yes	Yes
Microcredit	No		Yes	Yes	Yes	No	Yes
Mortgage loans	No (Ar2)		Yes	Yes	Yes	No	Yes
In the case of consumer loans, which of the following criteria are used to determine the riskiness of the debtor?							
Credit history	Yes	Yes	Yes	Yes	Yes	No	Yes
Indebtedness	No	Yes	Yes	Yes	Yes	No	Yes
Employment status	No	Yes	Yes	Yes	Yes	No	No
Financial situation	Yes	Yes	Yes	Yes	Yes	No	Yes
In the case of mortgage loans, which of the following criteria are used to determine the riskiness of the debtor?							
Credit history	Yes	Yes	Yes	Yes	Yes	No	Yes
Indebtedness	No	Yes	Yes	Yes	Yes	No	Yes
Employment status	No	Yes	Yes	Yes	Yes	No	No
Financial situation	Yes	Yes	Yes	Yes	Yes	No	Yes
Characteristics of the real estate property purchased	No	Yes	Yes	No	Yes	No	No
In the case of microcredit, which of the following criteria are used to determine the riskiness of the debtor?							
Credit history		Yes	Yes	Yes	Yes	No	Yes
Indebtedness		Yes	Yes	Yes	Yes	No	Yes
Employment status		Yes	Yes	Yes	Yes	No	No
Financial situation		Yes	Yes	Yes	Yes	No	Yes
In the case of commercial loans, which of the following criteria are used to determine the riskiness of the debtor?							
Credit history	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Indebtedness	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Financial profile	Yes	Yes	Yes	Yes	Yes	Yes	Yes
The firm's managerial quality	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ownership structure of the firm	No	Yes	Yes	Yes	Yes	Yes	No
Overall macroeconomic conditions	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Economic situation of the sector in which the firm operates	Yes	Yes	Yes	Yes	Yes	Yes	Yes

**Table 1 (continued): Survey Summary**

II. Other Provisions	Argentina	Brazil	Chile	Colombia	Ecuador	Mexico	Peru
Is there a <b>constant or general</b> provision that does not depend on the specific risk of the loan?	Yes	No	Yes	Yes	Yes	Yes	Yes
If the answer is <b>yes</b>							
Does the general provision depend on the type of loan?	No		No	Yes	No	No	Yes
If the answer is <b>yes</b>							
The general provision applies to							
Consumer credit				No			Yes
Commercial credit				No			Yes
Microcredit				Yes			Yes
Mortgage loans				Yes			Yes
Are there provisions on the investment portfolio?	No	Yes(Br1)	No (Ch5)	Yes	Yes	No	No
If the answer is <b>yes</b>							
Do provisions depend on:							
The issuer of the financial asset?		Yes		Yes	No		
The volatility of the market price of the financial asset?		No		No	Yes		
The credit rating of the financial asset?		Yes		Yes	No		
Are contingent claims subject to provision requirements?	Yes	Yes	Yes	No	No	Yes	Yes
Are the following assets subject to provision requirements?							
Fixed assets?	Yes (Ar3)	Yes	No	Yes	No	No	Yes (Pe2)
Foreclosed assets?	No	Yes	Yes	Yes	Yes	Yes	Yes (Pe3)
Are counter cyclical or dynamic provisions in place?	No	No (Br2)	No	Yes	No	No	Yes (Pe4)
If the answer is <b>yes</b>							
Are they computed following a rule?				Yes			Yes
If the answer is <b>yes</b>							
Does the rule depend on macroeconomic indicators?				No			Yes
Does the rule depend on factors associated with the loan portfolio of each individual bank?				Yes			No (Pe5)
Are mandatory provisions included in the calculation of bank capital?	Yes (Ar4)	No	No	No	Yes	Yes	No(Pe6)
If the answer is <b>yes</b>							
In first tier capital?	No		No	No	No	No	No
In second tier capital?	Yes		No	No	Yes	Yes	No
Can voluntary provisions be included in the calculation of bank capital?	No	Yes during the		No	No		No (Pe6)
If the answer is <b>yes</b>							
In first tier capital?	No	Yes, during the crisis	No	No		No	No
In second tier capital?	No		Yes	No		Yes	No

Notes:

(Ar1) For small sized loans.

(Ar2) Lagged values

(Ar3) Provisions for loss of value of assets

(Ar4) Only provisions on the loan portfolio. The loss of value of tangible assets is computed as a loss and reduces capital.

(Br1) The investment portfolio subject to provisions is that held to maturity, which is not marked-to-market. Each bank uses its own methodology to determine this provision.

(Br2) Only temporarily and ended in April 2010.

(Br3) Only temporarily.

(Ch1): In this loan category, the SBIF includes small firms that need to provision following models of group evaluation.

(Ch2): These loans are evaluated as a group since they correspond to a large number of operations, each involving a low amount. Debtors are either individuals or small firms. There is no predetermined number of risk categories for this type of loans. This is because provisions depend on the expected losses forecasted by group models used by banks.

(Ch2a): These categories are used for loans to firms that are assessed individually.

(Ch3): Even though it is not established by the SBIF's rules, banks can provision credits as soon as they start being in arrears.

(Ch4): The maximum amount of time can be 36 months If the loan is secured with guarantees. Otherwise, the maximum amount of time is 24 months.

(Ch5): The portfolio of non derivative financial instruments available for sale and kept to maturity are subject to norms on loss of valuation.

(Pe1): The criteria is discretionary but depends on the fact that the arrears are occasional.

(Pe2) For fixed assets loss of values are translated into depreciation accounts or losses.

(Pe3) There are special provisions for foreclosed assets or for assets placed as guarantee.

(Pe4) They are added to loans in the "normal" category.

(Pe5) It depends on each type of loan (commercial, consumer, etc)

(Pe6) If banks have less provisions than required, the difference is deducted from capital accounts. Only a fraction of the generic provisions (un to 1.25% of the APR) can be counted as second tier cap

Our survey captured important differences in provisions in other areas different than credit risk. In particular we found that countries also follow different approaches regarding provisioning for the investment portfolio. Only Brazil, Colombia and Ecuador charge provisions on all, or a fraction, of their investment portfolio. Almost all countries, excluding

Colombia and Ecuador, provision for contingent claims. Regarding provisioning for other assets, there is also a large variety of approaches, including the ways in which risks associated with the loss of value of fixed assets or foreclosed assets are dealt with.

An important element captured by our survey is whether regulations allow provisions to be computed as part of capital requirements. In all countries surveyed they cannot be included as part of tier 1 capital. In Argentina, Ecuador and Mexico, they can be computed as part of tier 2 capital.

#### **IV. Assessing the Quality of Provisioning Regimes in Latin America: A Simple Index based on Current International Recommendations**

The differences in provisioning regimes among Latin American countries complicate cross country comparisons in terms of the quality of the regulatory frameworks. In order to gauge an initial assessment of the quality of the provisioning regimes in the region, we propose the construction of a simple summary index. The novelty of this index is that it is based on recent consensus on what constitutes a strong regulatory regime. As such it contains elements of both micro prudential and macro prudential regulation as discussed in Section II. Of course, as with any index, it is important to note that the indicator has an important element of subjectivity and, therefore, the values of the index need to be interpreted as indicative only.

The proposed index is formed by four components. Two components relate to sound micro prudential regulation; the other two support strong macro prudential regulation.

Let us start with the components that relate to micro prudential regulation. As discussed above, sound micro prudential regulation provides incentives for individual banks to correctly internalize the risks derived from their activities. In this regard, the first component of the index measures the extent to which loan loss provisions are forward looking, i.e. that they are calculated based on the expectation of a loss and not solely on the observed deleterious behavior of a loan (arrears). We call this component of the index the *credit risk* component, and it takes a value between 0 and 1. If the regulation for provisioning

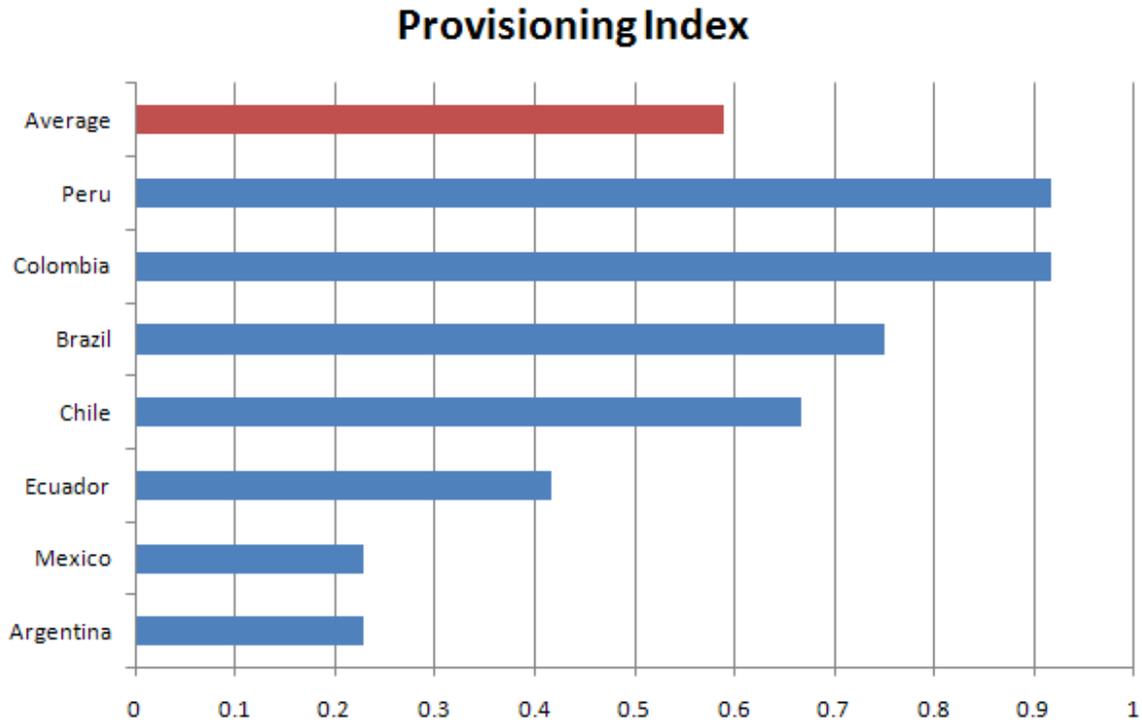
requirement does not allow for forward looking criteria at all, this sub-index takes a value of 0. If, instead the regulation allows for forward looking criteria in the computation of provisions for consumer, commercial, mortgage and microcredit loans, the sub-index takes a value of 1. Starting from zero, the sub-index adds a value of 0.25 for every type of loan (among the four types mentioned above) that is provisioned using forward looking criteria. For example, if forward looking criteria are used only in the computation of provisioning of two types of loans, say commercial and consumer loans, then the sub-index takes a value of 0.50.

A second component of the index that relates to sound micro prudential practices assess whether provisions are required for assets different than loans. The view taken here is that a strong regulation on provisioning considers adequate reserves for a variety of assets other than loans. This component of the index, which we call *provision on other assets*, also takes a value between 0 and 1. Starting from zero, this sub-index adds 1/3 of a point for each of the following elements: i) if there are provisions on the investment portfolio, ii) if contingent claims are provisioned for, and iii) if there are provisions on other assets or on foreclosed assets. Thus, if the regulation takes into account i), ii) and iii), this sub-index takes a value of 1.

We now turn to the components of the index that relate to the macro prudential approach. As discussed above, under the macro prudential approach provisioning should be designed to avoid pro-cyclicality. In this regard, the third dimension of the index measures if counter cyclical provisions are in place. The *counter cyclical* component takes a value of 1 if counter cyclical or dynamic provisions are in place and 0 otherwise.

Finally the fourth component of the index relates provisions to capital accounts. In line with the recommendations of the macro prudential approach, bank capital should be mostly formed by common equity and, therefore, provisioning should not be included in the computation of regulatory capital. The *capital* element of our index takes a value of 1 if provisions are not included in the computation of bank capital (either tier 1 or tier 2) and 0 otherwise.

Our final index is a simple average of the credit risk, other assets, counter cyclical, and capital components described above. Figure 1 plots the index constructed following this methodology for the countries in our sample.



Consistent with the large differences in provisioning regimes in Latin America, the value of the index varies significantly among the countries in our sample. Relative to our definition of a sound provisioning system, Colombia and Peru outperform the rest of countries in the sample. Interestingly enough, the provisioning regimes in these two countries are very close to our characterization of a sound provisioning system (that is, the index takes a value not far from 1). An important reason for this result is that, as discussed above, these two countries include countercyclical or dynamic provisioning in their regulation. The lack of this type of system largely explains the lower values obtained in Brazil and Chile. Among the sample countries, Argentina and Mexico have ample space to improve the quality of their provisioning regimes.

## **Concluding Remarks**

The recent international financial crisis has brought an enormous amount of attention to the need for an improved financial regulatory framework. While it is not unusual to observe changes in regulation following a crisis, a relevant question for Latin America is how the region fares regarding proposed improvements in regulation. This note has focused on provisioning requirements, a supervisory tool that is capable to deal with issues raised by the so-called micro prudential approach to regulation, as well as with the challenges uncovered by the macro prudential regulation approach.

Based on some key recommendations from both approaches regarding the implementation of a sound provisioning regime, we construct a simple index that we use to assess the quality of the provisioning requirements in a sample of countries from Latin America. Not surprisingly the results are quite diverse across countries. However, an important result that deserves emphasis is that a number of countries are in good standing; with the value of the index quite close to its maximum value.

Further research in this area is certainly needed. In particular two issues deserve greater scrutiny. The first is the need to improve the index to include additional factors, such as the quality of the supervisory authorities that assess compliance with the regulatory regime on provisioning, or the tax treatment on loan-loss provisioning. The second is to extend the analysis to incorporate additional supervisory tools.

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