Assessing the Impact of the COVID-19 Pandemic on the Corporate and Banking Sectors in Latin America[1]

Nonfinancial corporate performance in Latin America (LA) was already worsening prior to the COVID-19 pandemic, with falling profitability and rising leverage. Performance deteriorated further the second quarter of 2020 and is expected to remain weak the rest of the year. Corporate debt at risk has increased sharply in the first half of 2020 and could increase further if corporate earnings remain weak and interest expense increase in line with the rise in corporate debt. Despite these trends, banks in the region have been resilient so far, but the near-term outlook remains highly uncertain. Strong capital buffers combined with a multi-pronged policy response to support economic activity, ease financial conditions, and sustain credit intermediation have enabled banks in LA to cope with the immediate effects of the shock. However, the sheer size of the economic contraction this year and the expected slow recovery ahead could trigger firm and household bankruptcies and loan defaults. This would put pressure on banks' profitability and capital positions, impairing their ability to lend. A solvency stress test of a sample of 61 major banks in Brazil, Chile, Colombia, Mexico, Peru, and Uruguay (LA6) accounting for no less than 75 percent of banking assets in each jurisdiction shows that under the World Economic Outlook (WEO) baseline scenario, bank capital ratios would decline but remain above regulatory minima. In an adverse scenario, banks' capital positions would deteriorate significantly, and some banks could experience capital shortfalls without a policy response. If downside risks materialize, mitigating policies, including extending restrictions on the distribution of dividends, would be needed to ensure that average capital levels remain adequate.

Introduction

The COVID-19 pandemic has led to an unprecedented global contraction in economic activity, and LA is no exception. The pandemic continues to spread through the region (IMF 2020a and October 2020 *Regional Economic Outlook (REO): Western Hemisphere*), and its effects are projected to lead to the worst economic performance since World War II (October 2020 WEO).
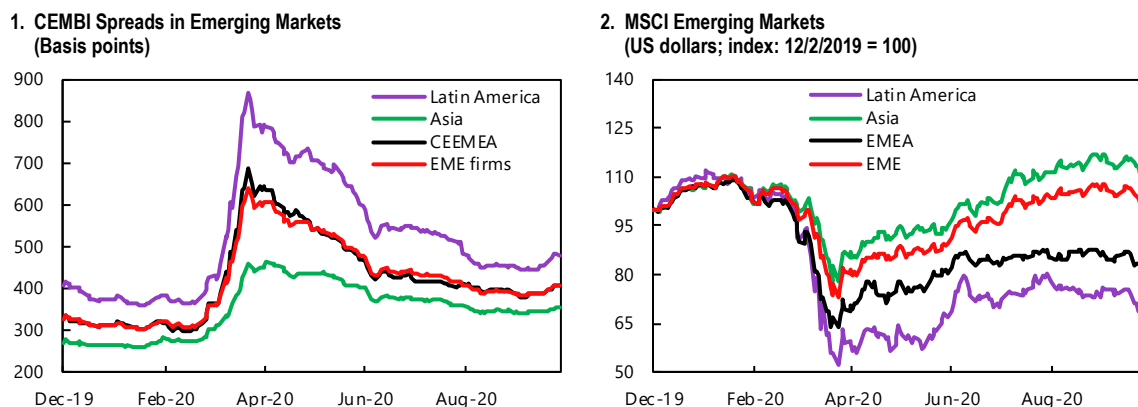
These developments have had a negative impact on nonfinancial corporations in LA, which are experiencing sharp falls in profitability and a worsening in their repayment capacity. Financial market data shows that large corporations in LA have been more negatively affected by the COVID-19 shock than those in other regions, with larger increases in spreads and deeper declines in stock prices (Figure 1). Moreover, since December 2019, Standard & Poor's has downgraded the credit rating for long-term foreign currency debt of about one third of all LA firms. However, the largest effect is expected to be felt by small and medium size enterprises (SMEs), which are predominant in contact intensive sectors, do not have large liquidity buffers, and face tight financing conditions.

To mitigate the immediate health and economic fallout of the pandemic, countries in the region deployed a multi-pronged policy response, including unprecedented measures to keep financial markets open and maintain the flow of credit to the economy (October 2020 REO: *Western Hemisphere*). These measures have helped cushion the initial impact of the crisis and prevented a potential destabilization of financial systems so far. Following an initial plunge, bank equity prices have partially recovered, while banks' implied CDS spreads have declined from their peak in mid-May (Figure 2). Both credit and deposit
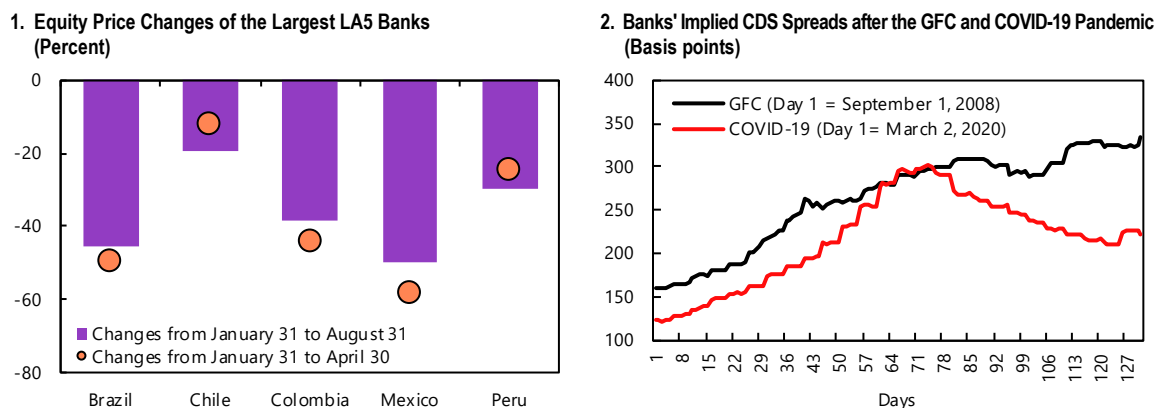
growth have also been strong, above the levels observed at end-2019 for many countries, while lending rates have declined, reflecting the large-scale monetary easing in many countries.

Figure 1. Corporate Spreads and Stock Prices

1. CEMBI Spreads in Emerging Markets
(Basis points)

2. MSCI Emerging Markets
(US dollars; index: 12/2/2019 = 100)

Sources: Bloomberg Finance L.P.; and IMF staff calculations.
Note: CEEMEA = Central and Eastern Europe, Middle East, and Africa; CEMBI = Corporate Emerging Markets Bond Index; EME = emerging market economies; EMEA = Europe, Middle East, and Africa; MSCI = Morgan Stanley Capital International.

Figure 2. Banks Implied CDS Spreads and Stock Prices

1. Equity Price Changes of the Largest LA5 Banks
(Percent)

2. Banks' Implied CDS Spreads after the GFC and COVID-19 Pandemic
(Basis points)

Sources: Bloomberg Finance L.P.; and IMF staff calculations.
Note: The sample includes the 3 to 4 largest banks in each of LA5 countries (Brazil, Chile, Colombia, Mexico, and Peru) based on the size of total assets. CDS = credit default swap; COVID-19 = coronavirus disease; GFC = Global Financial Crisis.

Nevertheless, if a more persistent pandemic leads to a deeper and prolonged recession, together with renewed disruptions in financial markets and another round of currency depreciations, nonfinancial corporate performance could deteriorate further, and banks could face a substantial increase in non-performing loans (NPLs), and their profitability and capital adequacy would come under renewed pressure.

The first part of the chapter reviews nonfinancial corporate performance in LA up to the second quarter of 2020 and the likely evolution of debt at risk in 2021 in an adverse scenario. The second part assesses the banks' resilience to the current crisis under the WEO baseline and adverse scenarios. In particular, this section performs a simple forward-looking solvency stress test using publicly available data for a sample of 61 major banks in LA6, corresponding to no less than 75 percent of banking assets in each jurisdiction. The aim is not to conduct a comprehensive stress test analysis—as done by the IMF Financial Sector Assessment Program or national authorities, where supervisory data together with

country and institution-specific information are used to assess solvency risk. Data limitations prevent us from explicitly considering the different components of credit portfolios when conducting the stress test—as the impact of the COVID-19 shock likely differs depending bank loan type (e.g., loans to large corporates versus vulnerable small and medium-sized enterprises). Nonetheless, the analysis serves the objective to systematically assess the resilience of the banking systems in the LA6 countries to the pandemic shock.

Using data from Bloomberg LS for listed and large non listed companies, the chapter finds that corporate performance has worsened significantly in LA , especially in the second quarter of 2020.[2] The share of debt at risk (debt of firms with earnings before taxes and interests lower than interest expenses) increased from 14 percent to total corporate debt in December 2019 to 29 percent in June 2020, and could increase further to around 50 percent in 2021 in an adverse scenario. Regarding banks, the main results indicate that under the baseline scenario, most banks would be able to maintain their capital ratios well above regulatory minima. In the adverse scenario, however, weaker banks with high NPLs and low profitability at the onset of the pandemic crisis would face a significant deterioration in their capital positions, and some of them may experience capital shortfalls in the absence of policy response.

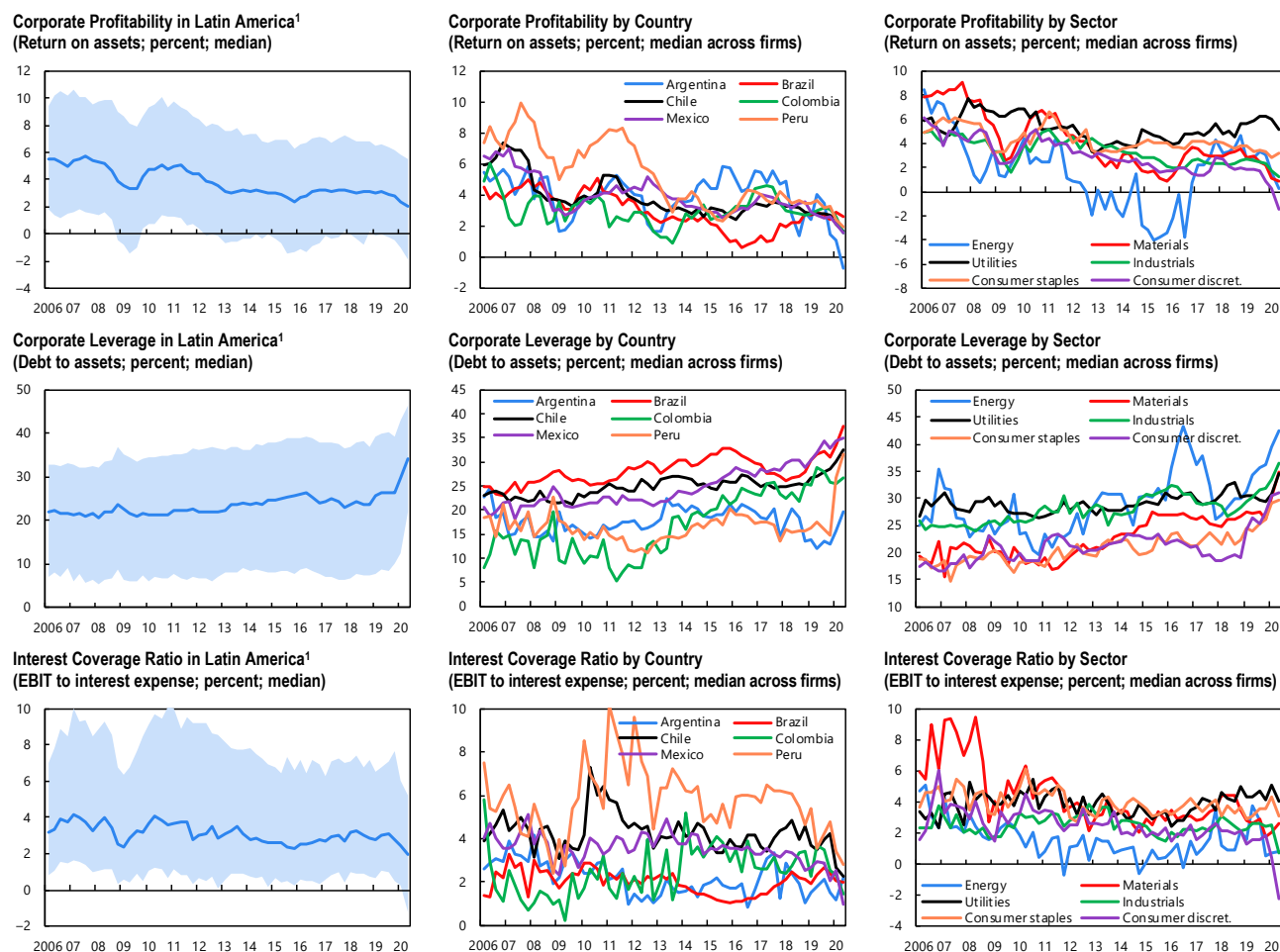## Nonfinancial Corporate Performance in LA

Nonfinancial corporate profitability had already fallen prior to the COVID-19 pandemic in LA and has declined further in 2020 (Figure 3). Profitability for the median firm in LA, measured as return on assets, fell from 5 percent in 2006-12, a period of high commodity prices, to 3 percent in 2013-19, when commodity prices had declined. Profitability fell further in 2020 to 2.5 percent in the first quarter and 2 percent in the second quarter.[3] This trend was common across the six largest countries in the region (Argentina, Brazil, Chile, Colombia, Mexico, and Peru) and across sectors (consumer staples, consumer discretionary, energy, industrials, materials, and utilities).

At the same time, leverage has been rising since the mid-2000s, and especially in 2020. Leverage for the median nonfinancial firm in LA, defined as the debt to assets ratio, rose from 22 percent in 2006 to 26 percent in the first half of 2016. Following a brief period of deleveraging between mid-2016 and end-2017, nonfinancial corporate leverage stated rising again from 23 percent at end-2017 to 30 percent in the first quarter of 2020 and 34 percent in the second quarter of 2020. This trend was common across countries and sectors, except for Argentina where corporate leverage has fallen somewhat since 2013. At the same time, capacity to repay has weakened, with the interest coverage ratio (ICR) for the median LA firm, defined as earnings before interest and taxes to interest expense, falling from 4 in 2006 to 2.9 in 2019, 2.4 in the first quarter of 2020 and 1.9 in the second quarter of 2020. This trend was also common across countries and sectors, although with differences in levels and volatility.

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[2]The analysis uses Bloomberg LS data, which is available at a quarterly frequency and with short lags. A key disadvantage of this database, however, is its lack of coverage of SMEs. Other firm-level databases with a good coverage of SMEs, such as Orbis, are available only at annual frequency and with significant lags.

[3]The values for the second quarter of 2020 are preliminary as only 555 firms had data for that quarter as of September 14, compared with over 700 firms for the first quarter of 2020.

Figure 3. Profitability, Leverage, and Interest Coverage Ratio

Corporate Profitability in Latin America[1]
(Return on assets; percent; median)

Corporate Profitability by Country
(Return on assets; percent; median across firms)

Corporate Profitability by Sector
(Return on assets; percent; median across firms)

Corporate Leverage in Latin America[1]
(Debt to assets; percent; median)

Corporate Leverage by Country
(Debt to assets; percent; median across firms)

Corporate Leverage by Sector
(Debt to assets; percent; median across firms)

Interest Coverage Ratio in Latin America[1]
(EBIT to interest expense; percent; median)

Interest Coverage Ratio by Country
(EBIT to interest expense; percent; median across firms)

Interest Coverage Ratio by Sector
(EBIT to interest expense; percent; median across firms)

Sources: Bloomberg Finance L.P.; and IMF staff calculations.
Note: Includes nonfinancial corporations of Argentina, Brazil, Chile, Colombia, Mexico, and Peru. Discret. = discretionary; EBIT = earnings before interest and taxes.
[1]Shaded area refers to the 25th/75th percentile range.

As a result, the share of nonfinancial corporate debt at risk has risen sharply in 2020 (Figure 4). Despite the trend decline in the median ICR, the share of corporate debt at risk in LA, defined as debt with an ICR below one over total debt, fell after the global financial crisis (GFC) from 24 percent in 2009 to 6 percent in 2010-14 and 4 percent in 2016-19.[4] More recently, however, the share of debt at risk has risen sharply, to 14 percent in the last quarter of 2019 and 29 percent in the second quarter of 2020. The marked increase in debt at risk and the tightening of global financial conditions in March and April have also been reflected on an increase in implied credit default swaps (CDS) spreads of around 200 basis points during the first six months of 2020.

On the upside, nonfinancial corporate cash buffers have risen, especially in 2020. The cash ratio, defined as the ratio of cash to short-term liabilities, increased from 9 percent in 2006-09 to 17 percent in 2010-19, 20 percent in the first quarter of 2020, and 25 percent in the second quarter of 2020. The rise in cash buffers, which likely reflects precautionary motives, was common across countries and sectors.

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[4]This trajectory was interrupted temporarily in 2015, when commodity prices declined following the collapse of China's stock market and the depreciation of the renminbi.

Figure 4. Debt at Risk, CDS Spreads, and Liquidity Buffers
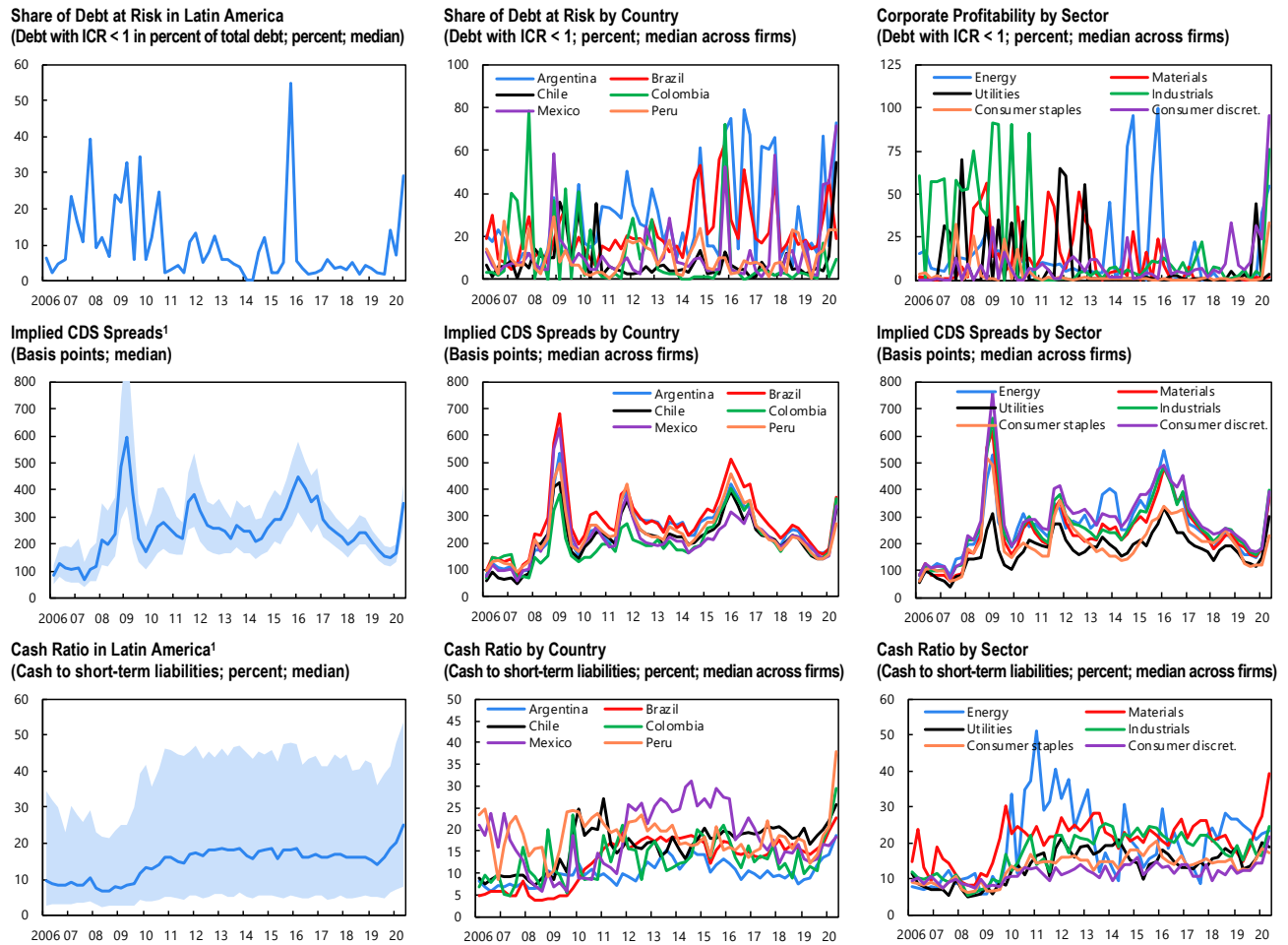
Sources: Bloomberg Finance L.P.; and IMF staff calculations.
Note: Includes nonfinancial corporations of Argentina, Brazil, Chile, Colombia, Mexico, and Peru. CDS = credit default swap; discret. = discretionary; ICR = interest coverage ratio.
[1]Shaded area refers to the 25th/75th percentile range.

Insights from other studies suggest that nonfinancial corporate performance in LA is likely to remain weak if the COVID-19 pandemic continues to spread in the region. Cevik and Miryugin (2020) study the impact of past epidemics on firms' sales, profitability, fixed investment, and firm survival for 14 emerging market economies during 1998–2018. The results show that past epidemics had an economically and statistically significant negative effect on firm performance, particularly for small and young firms. The impact of the COVID-19 pandemic on firm performance will likely be much larger than that of past epidemics due to the larger contraction in economic activity.

The intensification of the pandemic in LA in the second half of 2020 could further increase the share of nonfinancial corporate debt at risk. The share of debt at risk has already doubled from 14 percent of total debt in December 2019 to 29 percent in June 2020, when the number of COVID-19 cases in the six largest LA countries reached 0.5 percent of population. Under current trends, the number of COVID-19 cases could rise to around 3 percent of population at end-2020, which could further lower firms' ICRs and raise the share of corporate debt at risk in LA.

The share of nonfinancial corporate debt at risk could reach 50 percent in 2021 in an adverse scenario. As noted above, corporate debt in LA rose from 26 percent of assets in December 2019 to 34 percent in June 2020. For a given level of assets, this implies a rise of 30 percent in the stock of debt. Assuming that the interest rate in the new debt is the same as in the old debt and that the new debt only pays interest in 2021, interest expenses in 2021 would also increase by 30 percent. If EBIT does not grow in the second half of 2020 and in 2021, in line with an adverse scenario such as the one in the October 2020 WEO, the rise in interest expenses would lower the median ICR from 1.9 in June 2020 to 1.3 at end-2021, while the share of debt at risk would rise to 49 percent in 2021 (Figure 5).[5] These results are similar to those in the October 2020 *Global Financial Stability Report* (GFSR) for the Euro Area.

Figure 5. Share of Corporate Debt at Risk in Latin America
(Percent; share of corporate debt with an ICR < 1)

Source: IMF staff calculations.
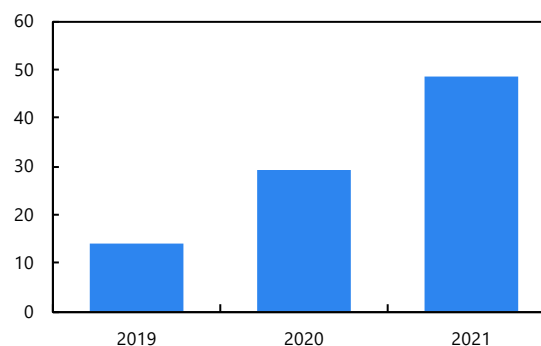Note: ICR = interest coverage ratio.

These predictions are consistent with those from other studies and recent data. For example, the United Nation's Economic Commission for Latin America and the Caribbean presented evidence of distress in large segments of the corporate sector in LA based on reports from local business chambers. It also estimated that the COVID-19 pandemic will lead to the closure of about 2.7 million firms, most of them SMEs. In addition, firm surveys in Brazil through August 2020 show that a higher fraction of small firms had reported declining sales than large firms.

Hence, the pandemic is expected to have negative impact on corporate performance and firm survival prospects, which would lower employment and economic activity (IMF 2020b). It could also lead to a tightening of lending standards in the banking system, which would further constrain financing even for firms that are otherwise solvent. These developments are likely to increase the incidence of nonperforming loans (NPLs) in the banking system and increase the risks to financial stability in the region, a topic that is analyzed in more detail below.

Recent developments in the banking system in LA

Banking system stability indicators were relatively robust pre-COVID and comparable to those at the time of the GFC (Figure 6). Following a prolonged period of high profitability and the introduction of stricter regulatory requirements to preserve financial stability, banks had built up ample capital and liquidity buffers. Moreover, the LA6 countries had a higher return on equity and liquid assets to short-term liabilities than the median emerging market economy (EME). Low NPLs also suggested that the credit portfolio quality was better in the LA6 countries than in most EMEs. While the capital adequacy ratio (CAR) was lower than in the median EME, its levels were substantially higher than the 8 percent regulatory minimum, ranging from 12 to 17 percent.
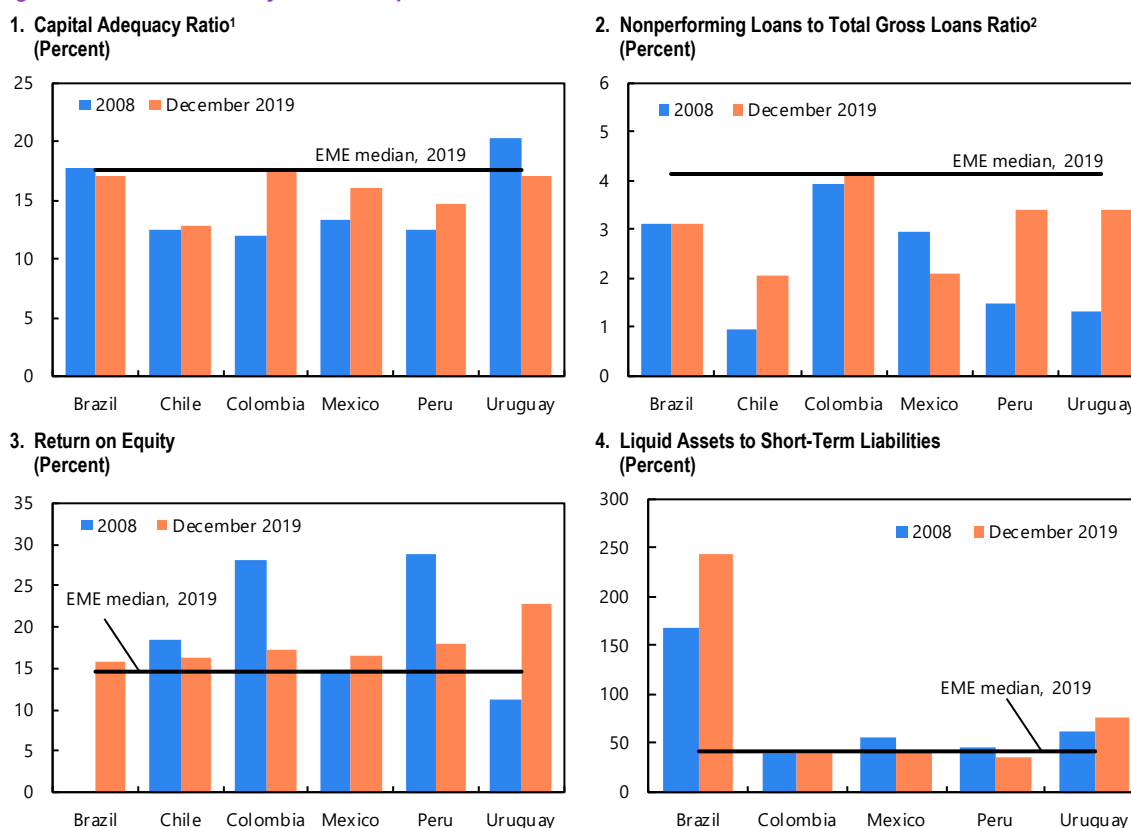
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[5]The share of corporate debt at risk in 2021 could be larger if SME debt is included, corporate earnings decline, or policy support to firms is withdrawn early. On the other hand, the share of corporate debt at risk in 2021 could be lower if the interest rate on new debt is lower than that on old debt as result of monetary policy easing and credit guarantees.

Figure 6. Financial Stability Indicators prior to COVID-19

1. Capital Adequacy Ratio[1]
(Percent)

2. Nonperforming Loans to Total Gross Loans Ratio[2]
(Percent)

3. Return on Equity
(Percent)

4. Liquid Assets to Short-Term Liabilities
(Percent)

Sources: IMF, Financial Soundness Indicators database; national authorities; and IMF staff calculations.
Note: EME includes emerging market and developing economies that are not low-income economies according to April 2020 *World Economic Outlook,* which have 2019 data in the Financial Soundness Indicators database. COVID-19 = coronavirus disease; EME = emerging market economies.
[1]Total regulatory capital to risk-weighted assets.
[2]NPL is defined as the amount of loans overdue for a certain period (typically, 30-90 days, depending on the type of loans). NPL definitions, however, are different across countries and therefore they are not directly comparable.

Financial soundness indicators deteriorated somewhat in the first half of 2020, but these changes were moderate compared to the size of the economic contractions in the second quarter (Table 1). NPLs have stayed broadly stable thus far. Caution is needed, however, as NPLs usually respond with a lag to reductions in activity and firm profitability, and in some cases reflect regulatory forbearance measures. Banks' profitability, however, has declined since the end of 2019 (except in Uruguay), with an increase in loan loss provisions. Banks' capital ratios have also fallen somewhat in some countries (Brazil and Colombia), while they have been stable in other countries. The implementation of extensive liquidity and financial policy measures likely supported the resilience of the banking system to the COVID-19 shock.

Table 1. Regional Financial Stability Dashboard

(a) FSI Indicators

	Capitalization *Regulatory capital to risk-weighted assets (percent)*		Liquidity *Liquid asset to short-term liability (percent)*		Asset Quality *Non-performing loans to gross loans (percent)*		Loan Loss *Loan loss provision to non-performing loan ratio (percent)*		Profitability *Return on equity (percent)*	
	Latest	Percentage point change since December 2019 (decrease = **red**)	Latest	Percentage point change since December 2019 (decrease = **red**)	Latest	Percentage point change since December 2019 (increase = **red**)	Latest	Percentage point change since December 2019 (decrease = **red**)	Latest	Percentage point change since December 2019 (decrease = **red**)
Brazil	16.3	**-0.8**	241.9	**-0.8**	2.8	**-0.3**	205.1	**26.3**	14.7	**-3.3**
Chile	13.4	**0.6**			2.0	**-0.1**			9.4	**-6.8**
Colombia	16.6	**-1.0**	42.5	**2.5**	3.9	**-0.3**	152.9	**10.5**	15.3	**-2.0**
Mexico	16.5	**0.5**	45.3	**4.3**	2.0	**0.0**	164.7	**17.7**	12.8	**-7.8**
Peru	15.5	**0.9**	43.4	**7.1**	3.4	**0.0**	184.5	**35.4**	10.8	**-7.0**
Uruguay	18.6	**1.5**	79.2	**3.3**	3.3	**-0.1**	64.7	**4.6**	26	**3.1**

Sources: IMF, Financial Soundness Indicators database; and national authorities.
Note: Latest data is May 2020 for Colombia, June 2020 for Brazil and Mexico, and July 2020 for Chile, Peru, and Uruguay.

(b) High Frequency Indicators

	Bank Equity Prices *Simple average for top 3-5 banks (end-2019 = 100)*		Price-to-Earnings Ratio *Simple average of top 3-5 banks*		Credit Default Swap Spreads *Simple average of top 3-5 banks*	
	Level (August 31, 2020)	Percentage point change since December 2019 (decrease = **red**)	Level (August 31, 2020)	Percentage point change since December 2019 (decrease = **red**)	Level (August 31, 2020)	Basis point change since December 2019 (increase = **red**)
Brazil	63	**-36.5**	8.4	**-0.9**	224	**96.4**
Chile	74	**-26.1**	11.6	**-1.9**	225	**100.0**
Colombia	61	**-38.8**	12.4	**-0.3**	221	**114.0**
Mexico	56	**-44.3**	5.7	**-2.7**	237	**50.3**
Peru	70	**-30.4**	11.4	**-3.8**	189	**84.0**

Source: Bloomberg Finance L.P.

Simplified Stress Testing Methodologies and Scenarios

To estimate the potential impact of the severe economic downturn on banking system solvency, we employ two types of empirical models. These quantify the effect of the macroeconomic shocks on bank CARs by modelling NPLs and return on assets (ROA) respectively (Box 1). For simplification and data availability, both models do not take account of individual differences in bank structure or the composition of bank assets and liabilities.[6]

- *NPL model.* Lending is the core of the banking business in LA6, and loan losses are the key risk to banks' profitability and capital. We estimate credit risk by modelling NPLs with key macroeconomic indicators. This approach involves three steps: (i) estimating the elasticities between NPLs and macroeconomic indicators, including the change in the unemployment rate, the change in real effective exchange rates (REERs), and real GDP growth, using a panel vector autoregression (PVAR) model;[7] (ii) using the elasticities to calculate the implied change in NPLs consistent with the macroeconomic scenario (see below); and finally (iii) estimating the amount of loan loss provisions resulting from the change in NPLs. With banks' net income assumed to

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[6]As mentioned earlier, this is a top-down approach to stress testing without going to into regulatory and bank detail, therefore it is not a substitute for FSAP-type stress tests, which would better capture both country and bank level characteristics.
[7]Not all banks publish NPL data, and even if some do, those banks do not publish NPL data in a consistent way. The regulatory definition of the NPL is also different across jurisdictions: for example, in Uruguay, the supervisor defines NPLs as any loans after 60 days past due, whereas in some other jurisdictions, the NPL is defined as loans after 90 days past due. Accordingly, for the stress testing exercise, we use NPL data published by S&P Global. S&P Global estimates NPLs by calculating the total of past due loans under risk categories D, E, F, G, and H (under generally accepted auditing standards in each jurisdiction). We compared S&P Global estimates with other sources (e.g., banks' presentation to investors), if available, and with IMF FSI data (country level). If S&P Global estimates differ substantially from other sources (for similar definitions), we used NPL data published by banks. Thus, banks' financial indicators are not fully comparable across countries.

be zero, any additional loan loss provisions are directly drawn from common equity tier one (CET1) capital.

- *ROA model.* Considering only the effect of NPLs likely underestimates the deterioration of banks' net income and capital. This is partly because other factors, such as exchange rates, interest rates, and asset prices, are also important for net income. In addition, since LA6 banks tend to write off NPLs relatively promptly, analyzing the *NPL* stock likely underestimates the severity of the deterioration in credit quality in periods of extreme stress. We hence complement the above NPL model by estimating a ROA model that directly links banks' ROA with macroeconomic indicators (the same as the NPL model), and estimate the change in ROA, which is assumed to directly affect CET1 capital.

The stress tests were conducted using two macroeconomic scenarios (Table 2), using common elasticities that are one standard deviation higher than the historical mean estimates. This attempts to capture possible "non-linearities" in the response of NPLs and ROA to the unprecedented pandemic shock.

Table 2. Stress Testing Macroeconomic Assumptions
(Percent)

		Baseline		Adverse	
	2019	2020	2021	2020	2021
Real GDP growth	1.3	-7.9	4.4	-9.5	-1.4
Unemployment rate	8.1	11.6	10.6	11.6	11.8
REER change	-2.8	-8.1	0.0	-8.1	-2.7

Sources: IMF, World Economic Outlook database; and IMF staff calculations.
Note: Simple average of LA6 countries (Brazil, Chile, Colombia, Mexico, Peru, Uruguay).

More broadly, the use of a common elasticity for all sample countries in our stress testing exercise does not reflect country-specific strengths or weaknesses.

- In the baseline scenario, real GDP falls sharply in 2020 and rebounds strongly in 2021, as projected in the October 2020 WEO (Figure 7). The unemployment rate increases by ¾-6¾ percentage points in 2020 and stabilizes in most countries in 2021. During the first eight months of 2020, the REER has fallen by 25 percent in Brazil, 13 percent in Mexico, 9 percent in Colombia, and has been broadly stable in the other countries. The analysis assumes that the REER would remain at the current level for the remaining of 2020 and in 2021.

Figure 7. LA6: Real GDP Growth
(Percent)
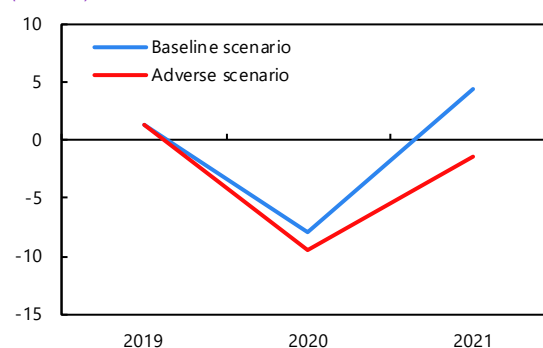
Sources: IMF, World Economic Outlook database; and IMF staff calculations.
Note: LA6 = Latin America 6 (Brazil, Chile, Colombia, Mexico, Peru, Uruguay).

- In the alternative scenario (following a similar path to the adverse scenario in the October 2020 WEO), the decline in real GDP in 2020 is slightly larger than the baseline scenario, but real GDP is assumed to continue falling in 2021 (Figure 7). In addition, with the prolonged recession, unemployment is assumed to continue to rise in 2021 (but at a slower pace than in 2020), and the foreign exchange rate is assumed to further depreciate in 2021 (but at a slower pace than in 2020).

- For each of these two scenarios, we calculate how the banks' NPLs, ROA, and CET1 ratios are affected.
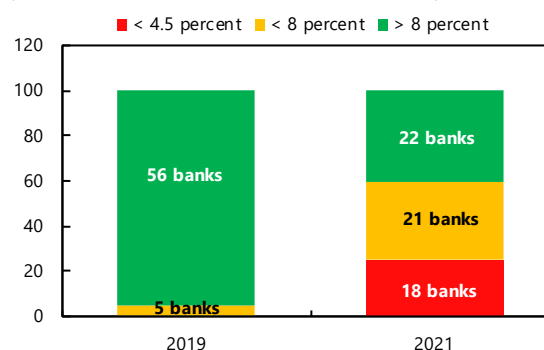
Stress testing results

In the baseline scenario, despite a significant increase in NPLs and a decline in banks' profitability, CET1 ratios, on average, remain adequate (Figure 8).

- The NPL model suggests that the average NPL ratio will double to 6 percent in 2020 (in the absence of bank-oriented mitigation policies to address bank balance sheet management), but with considerable variation across countries, ranging from 4 percent to 9 percent. The variation across banks is even more pronounced, ranging from a minimum of ¾ percent to a maximum of 13½ percent. This result reflects the initial NPL level and the size of GDP, unemployment, and REER shocks. For most countries, the NPL ratio will subsequently improve in 2021 (to 4¼ percent on average) but will remain above the 2019 level (3 percent).

- With the resulting increase in loan loss provisioning, the CET1 ratio will decline by 1½ percentage points to 10¼ percent in 2020 (on average across LA6 countries). The improved asset quality in 2021 will lead to a partial recovery in the CET1 ratio to 11 percent in many countries.

- The ROA model suggests a somewhat larger impact on the CET1 ratio in 2020. On average across LA6 countries, the CET1 ratio will decline by 3¼ percentage points to 8½ percent in 2020. The CET1 ratio would recover in all countries in 2021 but fall short of 2019 levels (by 2 percentage points on average).

In the adverse scenario, both NPL and ROA models suggest that banks' capital positions would continue to deteriorate in 2021, but the CET1 ratio would, on average, remain above the regulatory minima in all LA6 countries. However, some banks with lower initial ROAs and CET1 ratios would see their CET1 ratios fall below the regulatory minimum, in the absence of policy response. The distribution of bank assets by CET1 ratio using the ROA model is presented in Figure 9, which shows that about 75 percent of banks (by assets) would be able to maintain the CET1 ratio above 4.5 percent. The capital shortfall for the region to meet the minimum of 4.5 percent CET1 ratio is about US$6¾ billion (0.3 percent of bank assets in the sample). If also
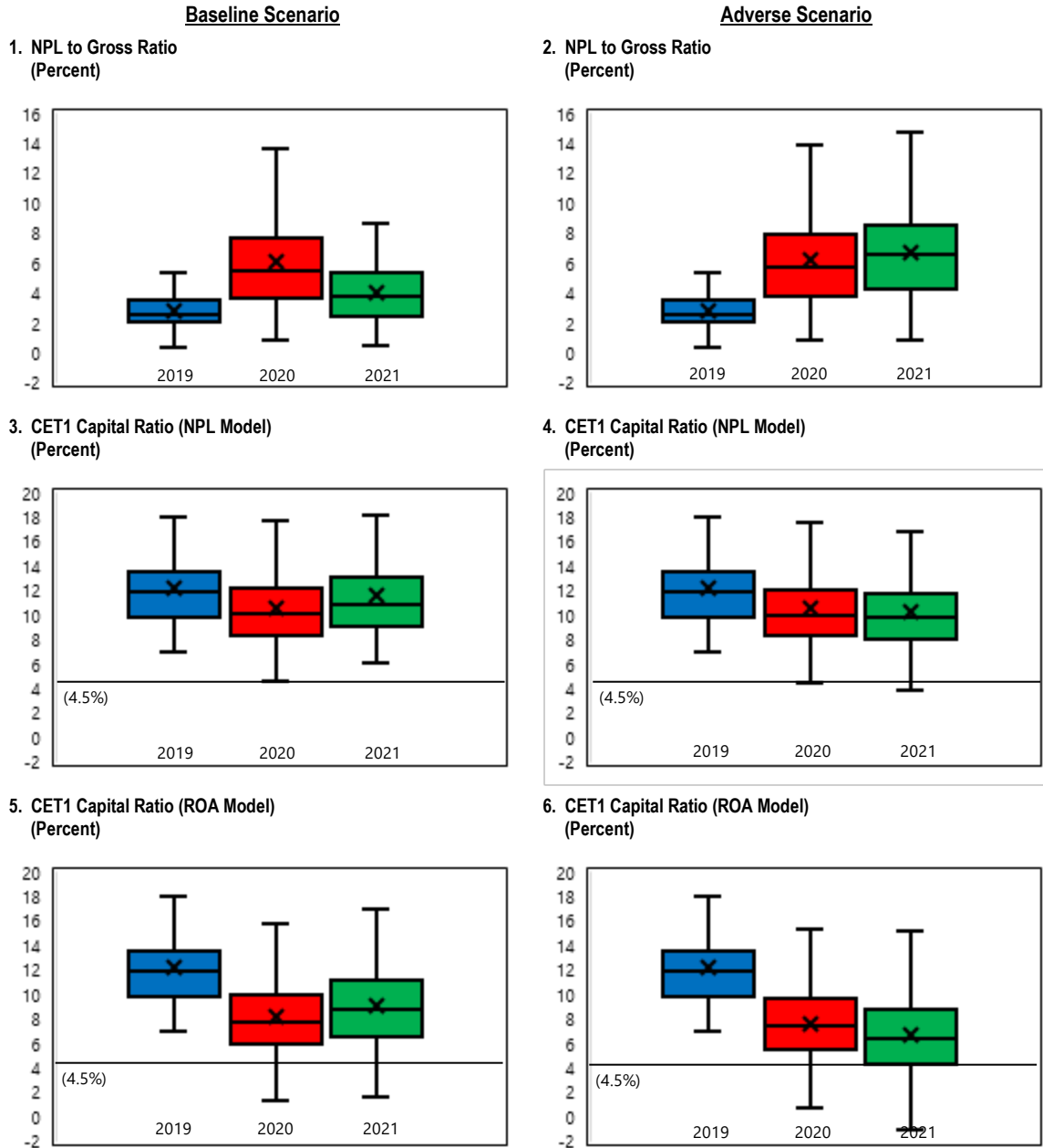
Figure 9. Distribution of Bank Assets by CET 1 Ratio under the Adverse Scenario
(Percentage share of banks assets in the sample)

Source: IMF staff calculations.
Note: CET1 = common equity tier one.

taking the capital conservation buffer (CCB) and D-SIB surcharge into account, several countries would have requirements for CET1 ratios at 7-8 percent.[8] A total of US$24-34 billion of capital (1½-2 percent of bank assets) would be required to bring the capital ratio back to 7-8 percent.

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[8]While the CCB should be drawn down during the current crisis, banks would be expected to eventually rebuild capital buffers over time.

Figure 8. Banks' NPLs to Gross Loans and CET1 Capital to Risk Weighted Assets

Baseline Scenario

1. NPL to Gross Ratio
   (Percent)

3. CET1 Capital Ratio (NPL Model)
   (Percent)

5. CET1 Capital Ratio (ROA Model)
   (Percent)

Adverse Scenario

2. NPL to Gross Ratio
   (Percent)

4. CET1 Capital Ratio (NPL Model)
   (Percent)

6. CET1 Capital Ratio (ROA Model)
   (Percent)

Source: IMF staff calculations.
Note: Excludes outliers. CET1 = common equity tier one; NPL = nonperforming loans; ROA = return on assets.

Summary and Policy Discussion

The COVID-19 pandemic is worsening nonfinancial corporate performance in LA. Performance had already deteriorated in the period prior to the pandemic, with falling profitability and rising leverage, and worsened further in the second quarter of 2020. The experience of past epidemics suggests that firm performance will remain weak the rest of 2020. Moreover, the impact will likely to be much larger than during past epidemics given the depth of the current economic contraction.

The pandemic is also weakening firm repayment capacity. The share of corporate debt at risk in LA has already risen from 14 percent in December 2019 to 29 percent in June 2020 and could increase further to around 50 percent in 2021 in an adverse scenario such as the one in the October 2020 WEO. The increase in debt at risk in 2021 would be driven by weak corporate earnings and a rise in interest expense in line with the recent increase in corporate leverage.

Significant policy actions have avoided further damage in the nonfinancial corporate sector, including through tax deferrals, programs to support employment, lower interest rates, loans to SMEs with credit guarantees, and other measures to maintain the flow of credit to the economy. Going forward, as countries gradually reopen, it will be important to maintain those measures targeted to support new lending to firms with shortage of liquidity, but with tightening eligibility criteria to better target illiquid but solvent firms (October 2020 GFSR). Close monitoring of the nonfinancial corporate sector will be key to anticipate potential adverse effects on economic activity and financial stability.

The LA6 banks entered the COVID-19 pandemic in a relatively benign position. They had adequate levels of capital and profitability, above those in other EMEs, and comparable to their own performance around the GFC. Financial stability indicators have not worsened significantly so far, but provisions have started to increase in some countries, reflecting an expected increase in borrowers' probability of default.

A forward-looking stress test exercise shows that under a baseline scenario, the capital ratio would decline on average as a result of the COVID-19 crisis but remain above regulatory minimum capital requirement. In an adverse scenario, banks' capital positions deteriorate significantly, with heterogeneous effects across countries. Nonetheless, the capital ratio ratio would, on average, remain above the regulatory minima in all LA6 countries. However, some banks would see their CET1 ratios fall below the regulatory minimum, in the absence of policy response.

Financial policy measures implemented since the onset of the pandemic crisis are expected to reduce the likelihood of adverse scenarios. The enhanced access to liquidity provided by central banks in both domestic and foreign currency has helped banks manage liquidity risk, while supporting the credit provisioning of banks. Many countries have also implemented specific measures that directly address bank balance sheet management (Table 3). For example, allowing banks to use the existing flexibility of the regulatory framework to restructure loans has helped contain the probability of default and limits on dividend payouts has contributed positively to bank capital. Some countries have also reduced countercyclical or conservational capital buffers. In addition, many countries extended substantial government guarantees, which reduced banks' provisioning needs by reducing expected losses (IMF 2020c, October 2020 REO: *Western Hemisphere*, and October 2020 GFSR, Chapter 4).

These measures have helped banks and borrowers to cope with the immediate stress of the crisis and avoid a significant increase in systemic risk. The existing flexibility of the regulatory framework should be used to weather the short-term impact of COVID-19 without diluting prudential standards or accounting requirements. Nonetheless, given the still-evolving nature of the crisis and unusually high uncertainty about the region's economic outlook, policymakers need to stay vigilant in monitoring the impact of the crisis on the banking system (October 2020 GFSR, Chapter 4). As noted in the October 2020 GFSR, as the pandemic persist liquidity pressures are likely to morph into insolvencies, especially if the recovery is delayed. Policymakers are also encouraged to regularly update stress testing frameworks by employing granular and timely data.

Table 3. Selected Regulatory Measures

	Brazil	Chile	Colombia	Mexico	Peru	Uruguay
Restriction to dividend distributions	√	√		√	√	
Key regulatory forbearance measures	(i) Exempt banks from increasing loan loss provisioning for restructured credit operations; (ii) reduce the risk weight for loans to SMEs from 100 percent to 85 percent; and (iii) reduce regulatory capital requirements for small financial institutions with simple risk profiles.	(i) Allow special/flexible treatment in the establishment of provisions for deferred loans; (ii) allow using surplus mortgage guarantees as a safeguard for SME loans; and (iii) postpone the implementation of Basel III standards by one year.	(i) Allow supervised entities to reprofile all loans that were less than 30 days over-due; and (ii) allow using surpluses mortgage guarantees as a safeguard for SEM loans.	(i) Allow special accounting treatment for loans that were classified as performing as of February 28; and (ii) extend renewed/ restructured credit lines for no more than 6 months from the original date.	(i) Allow financial institutions to modify the terms of their loans to households and enterprises affected by the Covid-19 outbreak without changing the classification of the loans; and (ii) relax loan provisions for the Reactiva Peru program and the Business Support Fund for micro and small companies (FAE MYPE). The authorities did not formally restrict dividend payments but are exerting moral suasion to persuade financial entities to reinvest their 2019 profits.	Loan payments for households and businesses that occurred between March 1 and August 31, 2020 are allowed to be deferred for up to 180 days.

Source: National authorities.

Box 1. Stress Test Empirical Strategy and Assumptions

Empirical strategy

To estimate the NPL and ROA models, we employ the panel vector panel autoregression (PVAR) method developed by Abrigo and Love (2015).[1] This method applies the generalized method of moments estimator and allows all variables to be treated as endogenous and cross-sectional dynamics to be explored.

$$Y_{it} = Y_{it-1}A_1 + Y_{it-2}A_2 + \cdots + Y_{it-1}A_{p-1} + Y_{it-p}A_p + X_{it}B + u_i + e_{it}$$

where i denotes a bank, u_i bank i's fixed effects, and e_{it} is the idiosyncratic shock. Y_{it} is a vector of endogenous variables: for both NPL and ROA models, these include the change in the NPL ratio (or the ROA level), real GDP growth, the change in the unemployment rate, and the change in the real effective exchange rate (REER). As a vector of exogenous variable, X_{it}, the terms of trade is included. The lag order p is set at 1 based on the model selection criteria by Andrews and Lu (2001). The sample period is 2000Q1 – 2019Q4 (quarterly data). We estimate the model using bank-level panel datasets. Data are from Fitch Connect and S&P Global.

The elasticities are calculated using the orthogonalized impulse response functions of the PVAR model. Box Table 1.1 shows six sets of elasticities. Given the sizable macroeconomic shock, the linear PVAR model may not appropriately capture the interdependencies of the endogenous variables. To address this concern, we have considered using elasticity E(2) and E(4), which are one standard deviation higher than their respective mean coefficients E(1) and E(3).

Box Table 1.1. Elasticity Assumptions
(Percent)

	NPL Model		ROA Model	
	E(1)	E(2)[1]	E(3)	E(4)[1]
Real GDP growth	-2.00	-3.31	0.16	0.19
Unemployment growth[2]	1.25	1.60	-0.01	-0.02
REER growth[3]	-0.41	-0.88	0.01	0.01

Source: IMF staff calculations.
[1]E(2) and E(4) are calculated by E(1) and E(3) plus one standard deviation from the mean, respectively.
[2]Annual growth rate of the unemployment rate.
[3]Annual growth of the REER (real effective exchange rate). An increase denotes an appreciation.

Other key assumptions

Because of the lack of supervisory data, the stress testing exercise is conducted based on several simplifying assumptions.

- Net income is assumed to be zero.

- The increase in the NPL, as a result of the macroeconomic shock, is assumed to equal additional loan loss provisions, which are deducted from CET1 capital. This means that all new NPLs are assumed to be "loss loans," which require 60 percent provisioning, and other capital buffers (such as T1 and T2) are not considered.

- Changes in collateral values are not considered.

- Market risks such as liquidity and contagion risks, or macro-feedback effects that might amplify the impact of initial shocks, are not considered.

- Banks and the authorities take no mitigating actions to counter the effects of the shock on bank balance sheets.

This box was prepared by Kotaro Ishi and Dmitry Vasilyev.
[1]Abrigo and Love, 2015, Estimation of Panel Vector Autoregression in Stata: a Package of Programs. University of Hawaii working paper.

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