



Munich Personal RePEc Archive

# **Towards A More Resilient Financial Sector**

Bespalova, Olga

International Monetary Fund

9 March 2020

Online at <https://mpra.ub.uni-muenchen.de/117862/>  
MPRA Paper No. 117862, posted 19 Nov 2024 22:41 UTC

# TOWARDS A MORE RESILIENT FINANCIAL SECTOR<sup>1</sup>

*Panama is a small and fully dollarized economy that positions itself as an international banking center of Latin America. The resilience of its banks (which hold assets double the size of its GDP), is critical for domestic macroeconomic stability. Conservative banking and improvements in supervision and regulation have helped Panamanian banks to remain sound. However, increasing complexity and concentration in Panama's banking system call for strengthening the regulatory framework to further safeguard financial stability. This paper suggests policy options to make the financial sector more resilient. First, it provides an overview of the financial system and recent trends, summarizes financial stability oversight and the prudential framework, analyzes the implementation of Basel III standards, and proposes steps to improve financial oversight and update the macroprudential toolkit. Second, it advocates the introduction of an effective financial safety net and upgrading the bank resolution framework. Third, it advises advancing regulatory framework reforms and coordination, and creating a regulatory sandbox for the growing fintech industry.*

## A. Overview of the Financial System and Recent Trends

**1. Panama's financial center is twice its economy size and vital in the region, but smaller and less sophisticated than other major financial hubs<sup>2</sup>.** As of November 2019, it hosted 79 banks<sup>3</sup>, which hold more than 90 percent of the system's assets, the rest is held by insurance, reinsurance, securities companies, and pension funds, and financial cooperatives and other entities. The 46 onshore banks, operating with a general license, form the domestic banking system: they amount to 86 percent of the entire banking center's assets, holding 87 percent of the deposits and 88 percent of the credit portfolio. Although almost two-thirds of onshore banks are foreign-owned, only one-third of the system assets and one-fifth of the system credit is received by the non-residents. General license banks can perform both internal and external operations. Of the 33 offshore banks, 22 hold an

Size of the financial system (2019)	Billion USD	Share of the total assets (%)	Share of GDP (%)
<b>1. Banks, insurance and securities</b>	<b>130.5</b>	<b>94.6</b>	<b>194.3</b>
a) Banks, of which:	125.0	90.7	186.2
onshore banks	107.9	78.3	160.8
offshore banks	17.0	12.4	25.4
b) Insurance and reinsurance	3.2	2.3	4.8
c) Securities companies and pension funds	2.3	1.7	3.4
<b>2. Other participants</b>	<b>7.4</b>	<b>5.4</b>	<b>11.0</b>
a) Cooperatives	2.2	1.6	3.2
b) Other financial entities	5.2	3.8	7.8
<b>3. Total assets</b>	<b>137.9</b>	<b>100.0</b>	<b>205.3</b>

Sources: Superintendency of Banks and IMF staff calculations.

<sup>1</sup> Prepared by Olga Bespalova (WHD).

<sup>2</sup> The foreign liabilities of the financial system are about 1/10 of Bahamas, 1/20 of Hong Kong SAR and Singapore, and 1/40 of the Cayman Islands.

<sup>3</sup> See Table A1.2 (Annex) for the details on the structure of the international banking center.

international license (IL), which can conduct business only with non-residents except for very limited interbank operations, and 11 have representative license (RL) - they cannot engage in any banking operations, focusing only on promotion activities. Offshore banks rely on external funding, almost all of which (97 percent) comes from the non-financial private sector (and only 3 percent from banks). Their assets include loans to non-residents (50 percent), interbank deposits abroad (28 percent), and foreign securities (22 percent). Thus, their impact on the domestic economy is virtually null; see SIP (2017).

**2. Panama’s banking center continues to consolidate, especially among foreign-owned banks, leading to higher concentration and systemic risks.**

Since January 2014, the number of banks declined from 91 to 79<sup>4</sup>. The onshore system lost four banks: there were seven exits (four acquisitions by incumbent banks, one voluntary liquidation, one forced liquidation, one reorganization), and three new entries. The count of the offshore banks declined by eight: the number of IL-banks declined by five (driven by four voluntary liquidations, one forced liquidation, one sale, and one new entrant), and the number of RL-banks decreased by three (due to seven voluntary exits with only four entrees). As many experts have predicted, this trend may continue, as smaller banks with lower profits and higher NPLs, may not be able to

	Onshore system			Offshore banks			Banking Center
	Foreign	Panamanian	Total	IL	RL	Total	
<b>Jan. 2014</b>	31	19	50	27	14	41	91
<b>Nov. 2019</b>	29	17	46	22	11	33	79
<b>Entries</b>	2	1	3	1	4	5	8
<b>Exits, of which</b>	4	3	7	6	7	13	20
- voluntary liquidation	1	0	1	4	7	11	12
- forced liquidation	1	0	1	1	0	1	2
- mergers and acquisitions	2	2	4	0	0	0	4
- sale with liquidation	0	0	0	1	0	1	1
- reorganisation	0	1	1	0	0	0	1
<b>Net change</b>	<b>-2</b>	<b>-2</b>	<b>-4</b>	<b>-5</b>	<b>-3</b>	<b>-8</b>	<b>-12</b>

Sources: Superintendency of Banks and IMF staff calculations.

cope with increasing operational costs (due to more stringent AML/CFT regulations and implementation of Basel III standards), and therefore may choose to be acquired by larger peers or exit the industry<sup>5</sup>. As a result, large and medium banks grow further, increasing concentration in the banking system. In 2019, seven largest onshore banks were holding about 65 percent of the total banking system’s assets (up from 62 percent in 2015).

**3. Panama’s financial center, which contributes around 7 percent of GDP every year, is critical for macroeconomic stability.**

Reliance on conservative banking practices<sup>6</sup> and high balance sheet buffers may not be enough to mitigate increasing systemic risks. This paper suggests policy options to improve financial stability oversight and prudential, develop financial sector safety nets and improve bank resolution framework, and advance regulatory framework and coordination.

<sup>4</sup> See Table A1.1 (Annex) for details on the structure of the International Banking Center.

<sup>5</sup> In February 2020, Banco Aliado absorbed Banco Panama (both domestic GL-banks). In December 2019, one license was cancelled (Bank G&T Continental (Panama), S.A.) and one RL-bank (Bank Julius Baer & Co. Ltd., Switzerland) initiated its voluntary liquidation.

<sup>6</sup> Banks’ lending portfolio constitutes 2/3 of total assets, with 80 percent of liabilities coming from deposits. Activities related to trading derivatives, structured-products or foreign exchange are limited. Banks invest in tradeable securities, of which about 2/5 are corporate bonds and 3/5 public sector bonds.

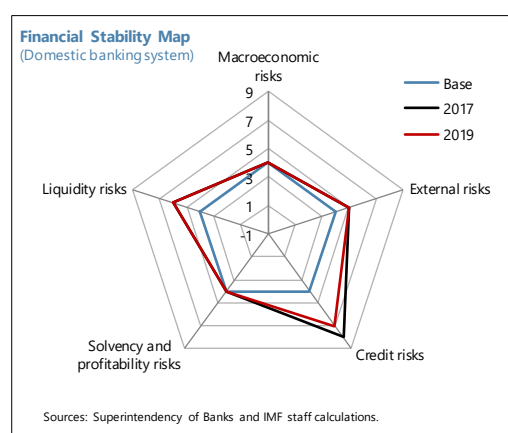
## B. Improve Financial Stability Oversight and Prudential Framework

### Financial Stability Oversight

**4. The Superintendency of Banks of Panama (SBP) has developed a broad regulatory framework to ensure compliance with international standards and best practices, increased transparency of the system, and strengthened systemic risk oversight.** It covers the classification of assets, capital adequacy, market risk, corporate governance, external auditors, mergers/acquisitions, and prevention of the misuse of financial services for money laundering (ML) and financing of terrorism (FT)<sup>7</sup>, among others. Since 2002, the SBP increased its transparency by reporting all the statistics of international assets and liabilities to the Bank of International Settlements (BIS) in Basel (although Panama is not a BIS member). Publications of the annual Financial Stability Report (FSR) and monthly updates also contribute to higher transparency. The systemic risk oversight includes monitoring the financial stability map (FSM) and critical risk factors, identification and analysis of the domestic systemically important banks (D-SIBs), and implementation of risk-based supervision and stress testing.

**5. The SBP uses an FSM to track risk developments in the banking system (see chart).**

It measures five types of risks, proxied by quarterly indicators. Deviation of the variables along each dimension from the baseline (2010-15) determines the risk score from 1 (the least risk) to 9 (the highest risk). The latest FSM shows that in 2019 credit risks declined compared to 2017. The SBP could further enhance the FSM by extending the number of risk indicators in line with Cervantes et al. (2014), as well as by including results of the stress tests – see Table A1.4 (Annex) for the list of currently used and proposed additional indicators.



**6. The SBP also monitors systemic risks using a version of an international rating system CAMELS, which could be enhanced further.** The analysis is conducted for groups of banks, ranked by their assets size. The indicators used in the analysis include (but not limited to) capital adequacy (share of tier 1 capital to total capital and capital adequacy ratio), asset quality (coverage of NPLs by provisions and growth of NPLs<sup>8</sup>), management income, earnings (ROA), liquidity, financial strength, credit risk, market risk, etc. To rank the banks' performance as strong, satisfactory, less than satisfactory, deficient, or critically deficient, the SBP would need to develop a scale to map the indicators into ratings (see Table A1.3 in Annex for a sample).

<sup>7</sup> Rules 5-2015 and 10-2015 establish due diligence procedures for customer and interbank regulations, including the know-your-customer (KYC) requirement for banks, trusts, and other financial entities. Rule 6-2016 aims to prevent ML and FT that may arise from cross-border correspondent banking relationships. Rules 9-2015 and 12-2015 set punitive administrative proceedings for potential violations of the ML/FT prevention.

<sup>8</sup> In this exercise, the SBP defines NPLs as all past-due loans late by at least 30 days.

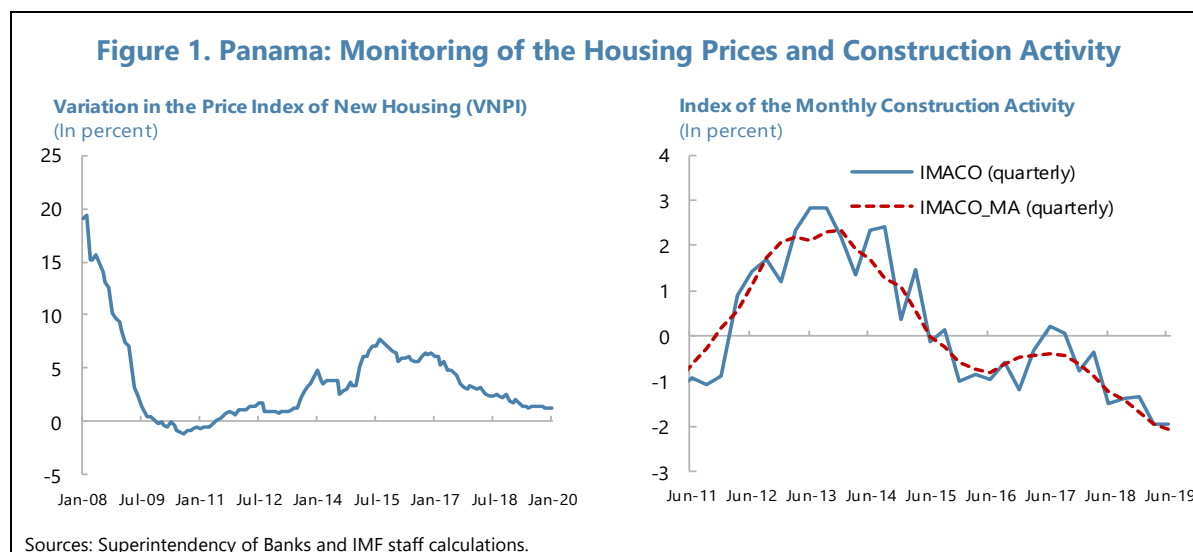
**7. The SBP has identified nine D-SIBs, ranking three as presenting the highest systemic risks, four - medium, and two others are the least systemic.** The methodology used by the SBP builds on the Basel recommendations and considers banks' license type, and a number of indicators on the banks size relative to GDP, substitutability, interconnection, inter-jurisdictional activity, and complexity. The SBP ranks the D-SIBs ranks, weighting each indicator by its importance and then sorts all the banks in three buckets as those presenting the highest, medium, and least systemic risks. To fully align with Basel recommendations, the SBP needs to (i) publish the methodology it uses to identify the D-SIBs; (ii) make the list of D-SIBs and their ranking public and update them at least annually; and (iii) implement the higher loss absorbency (HLA) requirement (in percent of the RWA, to be met with the tier I capital) differentiated by the risk bucket. Also, given a large difference in the size of the nine D-SIBs (their assets range from 6 to 25 percent of GDP), the SBP may consider using a more granular ranking scale (e.g., with five buckets)<sup>9</sup>.

**8. Stress tests consider the impact of macroeconomic shocks to the banking sector on asset quality and bank capital adequacy.** The SBP conducts stress-tests to credit portfolio and capital adequacy using a regression and balance sheet approach, developed with the Fund technical assistance (TA). Such tests consider baseline, moderate, and severe scenarios, and are applied both to the whole banking system and to the individual banks/groups of banks. Results show that banks would remain adequate even in the event of severe macroeconomic and interest rate shocks. The SBP could enhance stress-tests through: (i) considering more extreme shocks (e.g., with a prolonged recovery), potential cross-border bank failures or a distress in the financial groups; (ii) developing top-down liquidity stress-tests; and (iii) implementing the bottom-up internal capital adequacy assessment process (ICAAP), requiring banks to do independent stress-tests of credit and market risks, which would be compared to the top-down stress test by SBP.

**9. The SBP carefully monitors indebtedness of households and firms, and pays increasing attention to the real estate market.** From 2014 to 2019, the composition of private credit has changed: household indebtedness to banks rose from 35 to 42 percent of GDP, while the loan obligations of firms declined from 42 to 40 percent of GDP. Such a rise in household debt, although still low compared to financial centers (e.g., 54.2 percent of GDP in Singapore and 72.2 percent of GDP in Hong Kong SAR), requires vigilant monitoring. The recently raised threshold for preferential loans and the high demand for low-price housing stimulated preferential mortgage credit, leading to the increasing debt among low-income households, which could potentially raise credit risks. Due to the prolonged weaknesses in the construction and anecdotes of a relative oversupply in a high-price segment of the real estate market, the SBP began monitoring the price index of new housing (VNPI) and monthly index of construction activity (IMACO). The VNPI uses the data collected by a private third-party provider (*La Galería Inmobiliaria*<sup>10</sup>). In 2018 the aggregate index of house prices continued to grow, although at lower rates. The IMACO index shows that the construction sector is shrinking. Thus, it is critical to monitor loan exposure to the construction sector, which could shrink further and deteriorate in quality.

<sup>9</sup> For example, Hong Kong Monetary Authority set the HLA surcharge of 1-3.5 percent, gradually phased-in 2016-19.

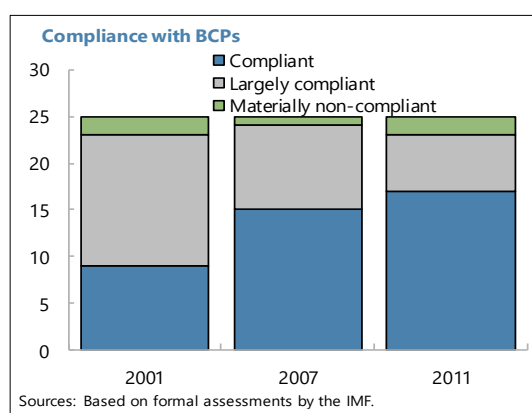
<sup>10</sup> It uses monthly surveys to monitor detailed information about new homes for sale from the moment it is first offered for sale until the last unit is sold. Residential prices for Panama are also available at [www.numbeo.com](http://www.numbeo.com)



## Adoption of the Basel Committee on Banking Supervision (BCBS) Standards

### 10. The authorities made significant progress in aligning the SBP's regulatory practices with the Basel Core Principles (BCPs).

Panama has received several evaluations of their regulatory framework (in 2001, 2007 and 2011). In 2011, it was fully compliant on 17 of 25 principles, compared to only 9 in 2001 (see chart). Higher compliance scores reflect enhanced off-site, consolidated, and cross-border supervision, and improved analysis of the investment and licensing criteria, among other. Law 2-2008 enhanced the SBP' powers by putting in place a more flexible and comprehensive bank resolution process, extending its supervisory authority to the holding company and affiliates of supervised groups and making more explicit that its authority includes the definition the group's perimeter and the identification of affiliates and related entities.



**11. Panama made progress on several fronts since the 2011 assessment.** Thus, it adopted capital requirements on operational risk, updated its capital adequacy framework, and addressed most deficiencies found in the 2011 assessment in newly introduced regulations. However, some issues identified in 2011 are still unresolved: (i) lack of regulation on the interest rate in the banking book (the SBP is ready to adopt in 2020); (ii) lack of guidance on transfer risk; (iii) dependence of the superintendent' term on the political cycle. The Basel standards evolve, and the SBP is adopting new regulations to catch up. The BCP list is changing and now includes 29 criteria, but the assessment based on the latest metrics is not available. For example, rules 5-2015 and 8-2019 have updated regulations on the corporate governance, but the assessment of this principle is not available.

**12. Basel III requires banks to have higher levels of capitalization and liquidity, allowing proportional implementation of new standards by the emerging markets.** While new rules strengthen banks' capacity to absorb losses, they may have a negative macroeconomic impact through the interest rate channel, as banks would pass higher operating costs to their clients. For example, the OECD estimated that implementation of Basel III could increase lending costs on average by 15 basis points due to an adoption of the updated minimum capital requirement and by 50 basis points after adoption of the capital conservation buffer (CCoB)<sup>11</sup>.

**13. Panama is the first Central American country to embrace Basel III standards on capital and liquidity.** Panama partially adopted Basel III regulations on capital adequacy (*Basel Core Principle 16*)<sup>12</sup>. Rules 1-2015 and 13-2015, which were gradually phased in by January 2019, increased the **minimum capital requirement** (to 4.5, 6, and 8 percent of RWA for the common Tier I capital, Tier I capital, and total capital, respectively), and limited the **leverage ratio** at 3 percent. However, current capital adequacy regulations do not include either the CCoB buffer (2.5 percent of common equity) or a countercyclical buffer (CCyB). In Basel III, adoption of the former is required, while implementation of the latter is at the authorities' discretion.

**14. To bring its capital regulations closer to Basel standards, the SBP should consider adoption of the CCoB for all banks and HLA capital surcharge for D-SIBs.** The SBP already included adoption of the CCoB in its strategic plan. The SBP is considering adoption of a capital surcharge for the D-SIBs. Analysis shows that D-SIBs would be able to absorb a further additional capital buffer of 2.5 percent of RWA, however, this assessment does not consider the potential impact of capital charges for market and operational risk, and does not take into account parallel introduction of the CCoB. In future, the SBP could consider feasibility for the adoption of the CCyB<sup>13</sup>.

**Table 1. Panama: Capital Adequacy Ratios in Percent of Risk-Weighted Assets (RWA)**

Type of capital	Minimum requirements <sup>1/</sup>		Desired levels
	Without buffers	With 2.5 percent in capital conservation buffer	With 0-2.5 percent in countercyclical buffer
Common equity	4.5	7	7-9.5
Total tier 1	6	8.5	8.5-11.0
Total	8	10.5	10.5-13

Sources: BIS and IMF staff calculations.

<sup>1/</sup> Banks must constrain dividend distributions if these ratios are not met.

<sup>11</sup> Slovik, P. and B. Cournède (2011) estimated that in advanced economies such an increase in the interest rates could lower growth by 0.05-0.15 percentage points per annum.

<sup>12</sup> The Banking Law (article 7) required banks to have a minimum of 4 and 8 percent of RWA in Tier I and total capital.

<sup>13</sup> All the BIS members and Norway have already adopted the CCyB regulations. However, most of them have set zero requirements. Hong Kong SAR has 2 percent CCyB requirement.

15. **SBP advanced in revising its regulations to Basel III standards on the risk coverage.**

- **Credit and counterparty risk (BCP 17).** Rule 4-2013 established specific and dynamic provisioning on credit, and set rules to assess collateral value. Dynamic provisioning, which is governed by a macroprudential motive and established on the normal portfolio, has countercyclical capacity, but is not equivalent to the countercyclical capital buffer<sup>14</sup>. Rules 3-2016 and 8-2016 established the risk weights for the different segments of banks' credit portfolio, in line with the latest standards of Basel III. Thus, mortgage loans had a relevant change concerning the previous weights as with consumer loans (cars, individuals) depending on their maturity. These rules also determine how to evaluate collateral of different categories.
- **Market risk (BCP 22).** Rule 11-2017 established typology of different derivative contracts and good practices in their management, and requirements of normalized capital according to the nature of the derivative, term and underlying. Rule 3-2018 created capital requirements for the financial instruments (bonds, securities, shares, forwards, swaps, options) registered in the trading book, and established restrictions on moving instruments between the books.
- **Operational risk (BCP 25).** Rule 11-2018 established capital requirements on operational risk and established standards for the operational risk management framework, including prudent policies and processes to identify, assess, evaluate, monitor, report and control or mitigate operational risk on a timely basis.
- **Country risk (BCP 21).** Rule 7-2018 prescribed the methodology to assess country risk and sets provisions on country risk management, which depend on the country risk classification set within this standard. Yet, there are no guidance or provisions established on the transfer risk.

**Table 2. Panama: Implementation of the Main Elements of the Basel III Package in Panama**

Element of Framework	Implementation	SBP Rules
Capital Adequacy	Common tier 1/RWA > 4.5 percent of RWA Total tier 1 capital /RWA > 6 percent (Tier 1 + Tier 2 capital)/RWA > 8 percent	1-2015
Capital conservation buffer	Common equity/RWA = 2.5 percent	Planned for 2020-2021
Countercyclical capital buffer	Common equity/RWA = 0-2.5 percent	N/A
Leverage ratio	Common tier 1 / total exposure to the non-RWA in and off-balance sheet > 3	1-2015
Risk coverage	Credit risk, including counterparty credit risk	4-2013, 3-2016, 8-2016
	Market risk	11-2017, 3-2018
	Country risk	7-2018
	Operational risk	4-2018
Capital surcharge for D-SIBs	Capital surcharge for D-SIBs	Considered
Liquidity Coverage Ratio (LCR)	High quality liquid assets / Net cash outflows in 30-day period > = 1	Gradually adopted
Net Stable Funding Ratio (NSFR)	Amount of stable funding (ASF) / required amount of stable funding (RSF) > = 1	Need to consider

Source: BIS, Superintendency of Banks

<sup>14</sup> See Wezel T. et al (2012).



**16. Panama advanced on the adoption of Basel III liquidity<sup>15</sup> standards by gradually phasing in the Liquidity Coverage Ratio (LCR)<sup>16</sup>, but it still has not considered the Net Stable Funding Ratio (NSFR).** *Rules 2-2018 and 4-2018* improve the system's ability to react to short-term liquidity risks by setting a minimum LCR, defining the early warning indicators of the liquidity distress, and requiring banks to change the treasury management and forecast inflows and outflows. The LCR is determined as a ratio of high-quality liquid assets to the 30-day total net cash outflow. LCR will be applicable at a rate of 50–100 percent, as determined individually for each bank, after a gradual phasing-in. This is different from the Basel, which requires that once LCR is fully phased-in, it applies to all banks at a rate of 100 percent. The Basel III package also includes the NSFR that aims to reduce funding risks at the medium-term horizon, the authorities should consider the feasibility of introducing the NSFR in the future, once the LCR is fully rolled-in (planned by the end of 2022).

### Prudential Framework

**17. The SBP uses a framework of macroprudential and microprudential policies to fulfill its mandate by the Banking Law (Law 52-2008) to ensure the soundness and efficiency of the banking system.** The *microprudential* supervision focuses on the soundness of each banking institution using a risk-based supervision approach, with both on-site and off-site examinations. The *macroprudential* supervision aims to establish the rules aimed at the prevention and mitigation of the systemic risk<sup>17</sup> and increase resilience of the banking system. To enhance early detection of the vulnerabilities, it is necessary to enable forward-looking assessment of risk profile of each institution.

**18. In its macroprudential toolkit, Panama has two broad-based measures and two sector-specific measures.** Broad-based tools include the *limit on the leverage ratio*, and *dynamic provisioning*, as set out in *rule 4-2013*, which should be within 1.25–2.5 percent of RWA corresponding to the normal loan portfolio, and cannot be lower than in the previous quarter, unless due to the conversion of dynamic into specific provisions.<sup>18</sup> The former restricts banks from excessive risk-taking by capping the growth of the RWA, thus preventing procyclical deleveraging of banks that could impact negatively on the broader financial system and the economy. The latter reduces procyclicality of banks' provisions and earnings, and thus their probability of default (see Torsten, 2012); it is efficient in the long-term but does not necessarily help to address short-term

<sup>15</sup> Articles 73–78 of the Banking law establish general liquidity requirements, including the 35 percent ceiling on the minimum liquidity requirement, and definition of the liquid assets.

<sup>16</sup> Introduction of the LCR is parallel with the legal liquidity index (established by *rule 4-2008*), which sets 30 percent minimum requirement on liquid assets specified in the rules (including cash and certain debt securities) as a share of qualifying deposits (it covers 186 days horizon).

<sup>17</sup> Systemic risk is defined here as the risk of disruptions in the provision of key financial services that can have serious consequences for the real economy. It is related to the interconnectedness of financial institutions and markets, common exposures to economic variables, and procyclical behaviors (IMF, FSB, BIS, 2011).

<sup>18</sup> The amount of dynamic provisions (DPR) is calculated as:  $DPR(t) = \alpha L(t) + \beta \max\{\Delta L(t), 0\} - SP(t)$ , where  $\alpha = 1.50$  percent,  $\beta = 5.00$  percent,  $L(t) = RWA$  for loans classified under the normal category, and  $SP(t) =$  variation in the balance of specific reserves. The DPR is a capital account that is paid or credited to the retained earnings account. The credited balance of the dynamic reserve is part of regulatory capital but cannot be included in the calculation of capital to meet the regulatory minimum of 8 percent (i.e., banks need to maintain the DPR above it).

vulnerabilities. **Sector specific measures** include capital requirements, determined by the risk weights, set by the type of loan, loan-to-value ratio (LTV), and features of collateral (see by *rule 3-2016*<sup>19</sup>).

**19. The macroprudential toolkit in Panama could be extended through the more flexible use of leverage ratio, dynamic provisioning requirement, and risk weights.** For example, stricter leverage ratio, higher dynamic provisioning could contain credit boom and decrease vulnerabilities due to market correction. Higher risk weights for certain types of loans could contain credit in the riskier sectors.

**20. In addition, the authorities could consider adoption of new macroprudential tools:**

- **Setting maximum LTV.** Higher limits on LTV will lead to larger down payments and limit leverage of borrowers. In the past, while dealing with the impact of the Global Financial Crisis (GFC), Panamanian banks effectively limited the loan-to-value ratios and set high presale requirements, which helped to contain exposure to construction and protect balance sheets. However, such measures were taken by banks as self-insurance, without the policy set by the SBP<sup>20</sup>.
- **Setting maximum debt-to-income (DTI) or debt-service-to-income (DSTI) ratios.** To include these instruments in its toolkit, the SBP has to begin requiring banks to periodically update data about income of the borrowers and report the DTI and/or DSTI ratios. Once it has regularly updated DTI and DSTI ratios, the SBP can set prudential limits and conditions to trigger them. For example, Hong Kong SAR and Singapore have used such instruments to influence market and price developments, occasionally adjusting limits as market dynamics change.<sup>21</sup> Note, that the existing practice of automatic payroll deductions for household credit effectively limits debt service to 50 percent of households' income, putting a ceiling on the DSTI. However, if the authorities find that optimal DSTI below 50 percent on household debt is justified, they could apply the DSTI or a corresponding limit on the DTI ratio.

## C. Develop Financial Sector Safety Nets and Improve Bank Resolution

---

<sup>19</sup> For example, risk weights for the personal, mortgage, and corporate loans are set as follows: 35 percent on mortgage for main home if LTV < 80 percent with the appraisal completed in the last 3 years; 50 percent on mortgage for main home if 80 < LTV < 100 percent with appraisal within 10 years or if LTV < 80 percent with appraisal older than 3 years; 50 percent on mortgage for second home if LTV ≤ 80 percent with appraisal within 5 years; 50 percent on other loans (personal or corporate) with commercial real estate pledges if LTV ≤ 60 percent (or with residential property pledges if LTV ≤ 70%) with appraisal within 3 years; 100 percent on other mortgages not listed above.

<sup>20</sup> To implement LTV, the SBP would have to require banks to submit data on the market value of the real estate.

<sup>21</sup> See Wong et al. (2011) on LTV as a macro-prudential tool.

## Emergency Liquidity Assistance

**21. Banks are a key source of liquidity in Panama's fully dollarized monetary system without a central bank—is vulnerable to potential a sudden stop of capital inflows.** Interbank deposits abroad are about 3 times larger than interbank deposits parked domestically, since many foreign banks hold their liquid assets in their parent banks. The National Bank of Panama (BNP), which acts as a fiscal agent of the government, also holds sizable reserves abroad. The GFC crisis showed that under stress, the interbank markets can freeze due to high holdings of the banks' liquidity abroad in foreign banks, segmentation of the interbank markets (foreign banks would not lend to small Panamanian banks), and insufficient collateral, constraining transactions. A similar situation could arise with a dry-up of international liquidity caused by a problem in the U.S. or other advanced economies, loss of the correspondent banking relationships (the risk of which is higher for smaller banks) due to country's inclusion in the "grey" AML-CFT or tax haven lists, or another instance of government arrears on the preferential mortgage interest rate<sup>22</sup>.

**22. The financial stimulus program (FSP) to provide liquidity to the system was created in 2009, with limited success.**<sup>23</sup> The FSP aimed to provide liquidity to the system for US\$1.1 billion. The funds came from the BNP (US\$400 million), the Andean Development Corporation (US\$210 million), and the Inter-American Development Bank (US\$500 million). The funds were to be managed by BNP through a trust that would extend loans to financial institutions, which would, in turn, were required to offer credit using standard criteria. BLADDEX assessed the creditworthiness of applying financial institutions. However, banks did not draw much into these resources, mainly because their liquidity remained ample, the conditions of access to the FSP resources were not favorable due to relatively high borrowing cost and collateral requirements, and they had negative perception against the "red tape".

**23. To strengthen stability of the banking sector, the authorities are considering the creation the National Liquidity Fund that could provide short-term liquidity to the system.** There were public discussions that at the beginning, the fund would be small (perhaps US\$500 million), and available only to the non-systemic, solvent banks with general license. It would operate as a discount window and be held in the BNP, which, as fiscal agent, maintains the country's payment system, keeps government deposits, and extends public credit. However, it would require legal changes to give the BNP the right to claim the funds back in case of bankruptcy. Thus, the fund's creation could require changes to institutional arrangements and the judicial powers of the regulatory agencies.

## Deposit Insurance Scheme

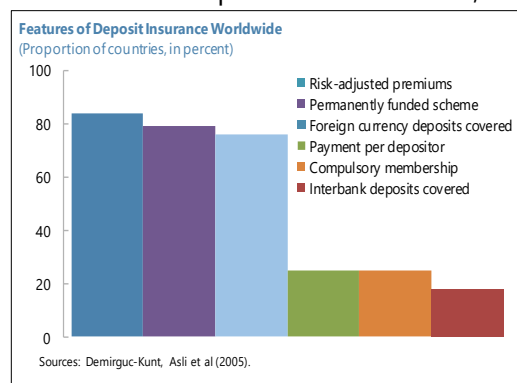
---

<sup>22</sup> In July 2019, new government uncovered unrecorded debt to the banks on the preferential interest rate, which reportedly created shortage of liquidity in the system; these arrears were paid in December 2019.

<sup>23</sup> Panama Announces \$1.1 billion Economic Stimulus Plan. Latin American Herald Tribune. <http://www.laht.com/article.asp?ArticleId=326173&CategoryId=14088>

**24. So far, Panama has managed resolution of failing banks well, without disruption of the system, but an explicit deposit insurance scheme (DIS) would further strengthen the banking center.** Article 167 of the Banking Law establishes that in case of liquidation, new deposits obtained during the reorganization and deposits lower than US\$ 10,000 have the first and second priority, which ensures the stability of the deposit base and benefits the interest of small savers. Depositors of the failed banks lose access to their funds during the bank resolution process, which may be lengthy in Panama due to shortcomings in the framework as discussed in the next section. According to the International Association of Deposit Insurers, Panama is only one of 26 countries worldwide without an DIS. Most recently, Costa Rica established a Deposit Guarantee Fund for both public and private banks, which was a requirement to join the OECD.

**25. There are several modalities in design of the DIS.** The legislators should choose the deposit base from which to assess the DIS premium (e.g., from all deposits, or only on insured deposits, or only on deposits in a particular sector such as households); coverage also of foreign and inter-bank deposits; existence and size of co-insurance; structure of premiums (flat rate or risk-adjusted graduated rate) and their size (in the international practice, from 0.05 to 1.85 percent); whether membership is voluntary or compulsory; the source of funding and administration (private, public, or joint); and whether the DIS would play a role in the resolution process<sup>24</sup>. In Panama, consideration should be given to a DIS funded by banks, who pay risk-adjusted premiums—such scheme limits excessive risk-taking by banks (see Urrutia, 1989). Government could consider providing initial funds for the DIS, which would start operating as an autonomous agent once premiums accumulated to a sufficient amount<sup>25</sup>. Main functions of such fund would be to collect premiums, invest the funds' assets, pay insured deposits, and participate in the crisis management.



## Bank Resolution Framework

**26. There is significant room to improve Panama's bank resolution framework<sup>26</sup>.** As it stands, the framework does not clarify objectives, triggers for intervention, and types of corrective measures; lacks the choice of robust resolution tools; and limits the SBP' resolution powers<sup>27</sup>. The new Bank Resolution Law could help to address these issues. In particular, the new law could:

<sup>24</sup> The IADI (2014) suggests that an effective DIS would include such features as sound public backstop, participation in crisis management coordination arrangements/exchange of confidential information, and legal protection for staff.

<sup>25</sup> For example, at a rate 0.5 percent, during the first 10 years the DIS would gather only 5 percent of the deposit base (not adjusted for inflation).

<sup>26</sup> An effective bank resolution framework should help to maintain financial stability providing continuity of the bank's critical functions, restoring the viability of the bank or at least some of its parts, protecting the creditors and public funds, and minimizing the costs of the process and destruction of value.

<sup>27</sup> The rights of shareholders are not suspended at any stage of the process.

- **Clearly define objectives and triggers for the intervention, and types of corrective measures to deal with non-compliance and/or financial distress.** Having a list of the qualitative and quantitative indicators could help to justify the SBP's decision to intervene and prevent potential legal disputes regarding the bank resolution process. The list should be open-ended, flexible and forward-looking, so that an action can be taken in case of a breach that has not been previously recognized, and the corrective measures should be proportional to the breach.
- **Provide a "menu" of the robust resolution tools**, e.g., a modified framework for mergers, a transfer of assets and liabilities tool, bridge bank tool, and forced recapitalization tool.
- **Give the SBP powers to assume control if the banks in resolution and establish a sanctioning regime.** Currently, the SBP has no tools to neutralize unfit shareholders, whose influence can jeopardize sound management practices of the bank (e.g., suspension of their voting rights, order to sell shares, etc.). A "sanctioning committee" could be established as a special collegial decision-making body to deal with the non-compliance of regulatory standards and financial distress.

These amendments can help to shorten the resolution process, protecting the value of assets and claimants' funds, and make it more efficient, preventing potential legal disputes about the outcome of resolutions, especially in cases with unfit shareholders, whose influence can jeopardize sound management practices of the bank.

## D. Enhance Regulatory Framework and Coordination

### Roles within the Financial Coordination Council

**27. Currently, the Financial Coordination Council (FCC) is a collegial body that aims to facilitate information exchange and discuss newly planned regulations<sup>28</sup>, but it is not authorized to make decisions or set system-wide policies.** The FCC<sup>29</sup>, established by Law 67-2011, coordinates actions of the financial sector supervisors through bi-monthly meetings. Its Board, chaired by the Superintendent of Banks, includes five full members and two associate members<sup>30</sup>. The Superintendencies of Banks, Securities Markets, and Insurance and Reinsurance also serve in each other Boards of Directors, therefore enhancing policy coordination. There are several options to enhance the role of the FCC. First, the FCC could move towards a more centralized supervisory

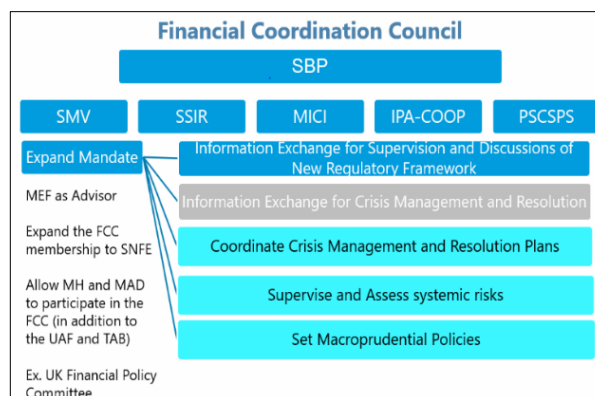
---

<sup>28</sup> Over 2014-18, the FCC discussed such topics as consolidated results of the financial system, risk-based and coordinated supervision, bank resolution, AML/CFT regulations and GAFILAT assessment, negotiations of free-trade agreements, and draft MOU between the CCF members.

<sup>29</sup> Resolution 1-2012 approves internal regulation of the FCC (see *Gaceta Oficial* 27086 on July 26, 2012).

<sup>30</sup> The former include the superintendents of Securities Markets and Insurance/Reinsurance, the executive directors of the Panamanian Autonomous Institute of Cooperatives and the Pension Savings and Capitalization System of Public Servants, and the National Director of Financial Companies of the Ministry of Commerce and Industry (which oversees financial, leasing, remittance companies, and pawn shops). The latter include the directors of the Financial Analysis Unit and the Technical Accounting Board, they have a right to participate and speak but not to vote.

structure (as, for example, the Financial Policy Committee in the United Kingdom). Second, mandate of the FCC could be expanded with powers to facilitate inter-agency exchange of information for purposes of the crisis management and resolution; supervise and assess systemic risks under hypothetical scenarios; develop coordinated plans for crisis preparedness, management, and resolution activities in good times; and set macroprudential policies.



**28. The Ministry of Economy and Finance (MEF) should increase its role in the current crisis management and resolution framework.** Currently, MEF does not participate in the FCC and does not have an assigned role in providing a public financial backstop to facilitate resolution. Bringing in MEF on Board of the FCC and clearly defining its role in providing a public financial backstop to facilitate resolution<sup>31</sup>.

**29. Panama has made progress in consolidated supervision.** Panama participates in the regional coordination bodies—Association of Supervisors of Banks in Americas (ASBA), and the Central American Council of Superintendents of Banks, Insurers, and other Financial Institutions - aiming to enhance the monitoring of systemic risks and secure regional financial stability. The SBP coordinates closely with other banking supervisors within the region. Rules 7-2014 and 2-2016 set standards for the consolidated supervision of banking groups. To mitigate structural systemic and interconnectedness risks, rules 6-2009, 5-2013, and 5-2016 restrict risk concentration for economic and banking groups and related parties, limiting large exposures for banks by 25 percent of consolidated capital for a single counterparty.

### Regulations for a More Modern and Inclusive Financial System

**30. Panama's comparative advantages, such as high-speed internet<sup>32</sup>, a significant number of internet users, low taxes, and lack of sectoral regulations, attract diverse fintech start-ups.** It already participates in the international online payment systems, cryptocurrency trade<sup>33</sup>), and hosts initial coin offerings (ICO) by the blockchain operators and cryptocurrency traders. Some local banks have begun to capitalize on the fintech potential to reduce costs, increase efficiency and

<sup>31</sup> Another potential full FCC member could be the Superintendency of the Non-Financial Entities (SNFE). The Ministry of Housing and the Ministry of Agricultural Development could become associate members. These two ministries oversee two non-deposit taking public development banks, lending to the low-income population—the National Mortgage Bank (BHN), and the Agricultural Development Bank. The BHN, in its turn, supervises savings and credit associations. See Dehesa (2006) for details on public banks in Panama.

<sup>32</sup> Seven submarine fiber optic cables passing through Panama, connect it with the Electrical Interconnection System of the Central American Countries (Siepac) and the Central American Telecommunications Network (RedCA).

<sup>33</sup> Large trader of bitcoin futures and options *Derbit* announced its move from Netherlands to Panama in 2020.

competition, and broaden access to the financial sector for the underserved population, and rolled out mobile wallet apps<sup>34</sup>. Local banks reportedly cooperate with fintech start-ups and facilitate the trade of digital currencies. The PanaFintech Association, established in 2017, promotes communication between the main actors of the fintech ecosystem (regulators, entrepreneurs, technical talent, universities, financial sector) and participates in the regional body—the Ibero-America Fintech Alliance.

**31. The growing fintech industry in Panama calls for policies to digitalize economy, strengthen cybersecurity and create a regulatory sandbox.** The [Bali Fintech Agenda](#), supported by the IMF, encouraged its members to embrace new opportunities, while being vigilant of the risks. To realize its Strategy for the Development of the Information and Communication Technologies, Panama began to update its IT systems and roll out new digital platforms. In 2018, Panama moved up to the 66<sup>th</sup> place in the United Nations [E-government Development Index](#) (compared to the 114<sup>th</sup> rank in 2016). However, in the [Global Cybersecurity Index](#) (GCI) Panama fell to 97<sup>th</sup> from 62<sup>nd</sup> place in 2018 compared to 2017. Thus, Panama needs to advance its cybersecurity framework<sup>35</sup> and implement the best practices (e.g., Uruguay ranks the 3<sup>rd</sup> in the Americas after the USA and Canada in the GCI). A regulatory sandbox for the fintech could help Panama to stimulate growth of the industry while containing potential risks. In 2018, the authorities prepared a draft Bill for the Modernization of the International Financial System of Panama, but it was not finalized<sup>36</sup>. Today, the government prioritizes developing a sandbox using the best international practices.

**32. Creation of a regulatory sandbox for fintech should take into account the latest recommendations on the subject from relevant supervisory bodies.** For example, [IMF \(2020\): Institutional Arrangements for Fintech Regulation and Supervision](#) discusses what fintech developments mean for the financial sector supervisors. The [IMF \(2019\): Regulation of Crypto-Assets](#) argues that effective regulation of financial services promotes long-term economic stability and minimizes the social costs and negative externalities from financial instability, and the same underlying principles are applicable to the regulation of crypto assets<sup>37</sup>.

**33. Recent fintech legislation of Latin American countries provides good examples.** For example, Mexico enacted a comprehensive fintech law and complementary regulations, which take full effect in 2020. Brazil issued regulation on the crowdfunding and peer-to-peer lending, and created a special congressional commission which is working on a broader law. Colombia and Argentina have set norms for crowdfunding, while warning investors against cryptocurrencies. The Chilean commission on financial market has issued a white paper to set regulatory parameters for

---

<sup>34</sup> E-wallets allow opening a simplified digital savings account, which can be used to pay online and in shops with quick response (QR) codes, and transfer money between cell phones.

<sup>35</sup> Panama ratified the Budapest Convention on Cybercrime of the European Council in 2014.

<sup>36</sup> It aimed to define functions and regulation of the specialized financial entities (with powers to open and manage payment accounts, transfers, remittances, and issuance of e- money, and set their regulation) and collective financing centers or crowdfunding platforms; and to clarify regulation of the ICO by the SSM.

<sup>37</sup> The U.S. Securities and Exchange Commission published a warning against initial exchange offerings. The Financial Services Agency of Japan proposed draft bill to impose stricter leverage limit on crypto-currency traders.

the industry, focus on crowdfunding, roboadvisory services, and payment systems. The banking regulator in Peru has issued strategy on crowdfunding and payment systems.

## E. Conclusions: Key Recommendations

### 34. The authorities should consider taking action to strengthen the regulatory framework to safeguard financial stability and make the system more resilient, in particular:

- **Strengthen financial stability oversight:** (i) inform the risk monitoring by a larger number of indicators, including from the results of stress tests; (ii) enhance stress-testing by considering more severe shocks, including those with a prolonged recovery, cross-border, and financial group failures; implement the ICAAP to complement the top-down stress tests.
- **Align regulations more closely with the Basel III package:** (i) adopt and gradually phase in CCoB (2.5 percent of RWA for common tier 1 equity) for all banks; (ii) formalize regulation for the D-SIBs, including publication of the methodology to identify D-SIBs, and introduce the HLA capital surcharge for the D-SIBs; (iii) consider introduction of the CCyB for all banks and implementation of the NFSR after a careful analysis.
- **Use macroprudential policy more actively** through the more flexible use of parameters in the existing tools (leverage ratio, dynamic provisioning requirement, or risk weights) and adoption of additional measures, e.g. the direct limits on the LTV, DTI and DSTI ratios.
- **Develop a tighter financial safety net** by establishing emergency liquidity assistance and the deposit insurance scheme and **improve the bank resolution framework.**
- **Enhance regulatory framework and coordination:** (i) extend mandate of the FCC and strengthen its structure by expanding its membership; (ii) enhance role of MEF in the current coordination, crisis management and resolution framework; and (iii) adopt the regulatory sandbox for fintech.



## Annex 1. Recent Developments

Table A1.1. Panama: Entries and Exits in Panama International Banking Center						
Year	Actions	Name of bank	License	Country	Dates of operation	Comment
Onshore Banks with General License (GL)						
2014	Exit	Bank Leumi Le-Israel, B.M	GL	Israel	Oct. 1982 - Aug. 2014	VL [1]
2014	Entry	Canal Bank S.A. (BMF)	GL	Panama	Since Oct. 2014	New license
2014	Merge	Banco BAC de Panamá, S. A	GL	Colombia	May 1983 - Nov. 2014	Merged with BAC International Bank, Inc.
2015	Merge	Produbank (Panamá), S.A.	GL	Ecuador	Apr. 2006 - Jun. 2015	Acquisition by St. Georges Bank & Company, Inc.
2016	Exit	Banco Universal, S.A.	GL	Panama	Dec. 1994 - Aug. 2016	Reorganization, shares transfer (70 percent) to Canal Bank S. A.
2016	Exit	Balboa Bank & Trust Corp	GL	Panama	May 2019 - Aug. 2018	Seizure of control, reorganization and sale to Corporación BCT, S.A. (Costa Rica)
2019	Exit	Banco Panameño de la Vivienda, S.A.	GL	Panama	Apr. 1981 - May 2019	Acquisition by Global Bank
2016	Entry	Bi-Bank, S.A.	GL	Guatemala	Since Jan. 2016	New entry
2017	Entry	Atlas Bank (Panamá), S.A.	GL	UAE	Since Oct. 2017	New entry
Offshore Banks with International License (IL)						
2014	Exit	ES Bank (Panamá), S.A.	IL	Portugal	Mar. 2002 - Jun. 2014	Forced liquidation
2016	Entry	BPR BANK, S.A.	IL	Dom. Rep.	Since Jun. 2016	New entry
2016	Exit	Scotiabank Perú, S.A.A.	IL	Peru	Sep. 2006 - Dec. 2016	VL, res. 188-2015
2018	Exit	BSI Bank (Panamá), S.A.	IL	Switzerland	Feb. 2014 - Mar. 2018	VL, res. 122-2017
2018	Exit	Banco Corficolombiana (Panamá), S.A.	IL	Colombia	Dec. 204 - Oct. 2018	VL, res. 46-2018
2019	Exit	Banco Santander (Panamá), S.A.	IL	Spain	Aug. 1973-Dec. 2018	VL, res. 240-2017
2019	Exit	International Union Bank, S.A.	IL	Venezuela	Nov. 1981-Aug. 2019	Sale and license cancellation (res. 80-2018, 181-2019)
Offshore Banks with Representative License (RL)						
2014	Entry	Banco Etcheverría, S.A.	RL	Spain	Since Aug. 2014	New entry
2014	Entry	SAXO BANK (PANAMÁ), S.A.	RL	Denmark	Since Nov. 2014	New entry
2015	Entry	Bank of Saint Lucia International Ltd.	RL	Saint Lucia	Since Aug. 2015	New entry
2015	Entry	UBS SWITZERLAND AG	RL	Switzerland	Since Dec. 2015	New entry
2016	Exit	Mizrahi Tefahot Bank, Ltd	RL	Israel	Dec. 2008-May 2016	VL, res. 10-2016
2016	Exit	SAXO BANK (PANAMÁ), S.A.	RL	Denmark	Nov. 2014 - Dec. 2016	VL, res. 199-2016
2017	Exit	Bank Hapoalim B.M.	RL	Israel	Jan.1982 - Apr. 2017	VL, res 012-2017
2017	Exit	Credit Suisse	RL	Switzerland	Dec. 2015 - Apr. 2017	VL, res 21-2017
2017	Exit	Banco de la Provincia de Buenos Aires	RL	Argentina	Jan 1982-Nov.2017	VL, res 202-2016
2019	Exit	Banco Do Brasil, S.A.	RL	Brasil	Sep. 1973-Apr. 19	VL, res 163-2018

Sources: Superintendency of Banks of Panama and IMF staff calculations.

[1] VL stands for "voluntary liquidation"

**Table A1.2. Panama: Structure of the International Banking Center**

	2015			2017			2019			
	Onshor	Offshor	Total	Onshor	Offshor	Total	Onshor	Offshor	Total	
Number of banks	48	45	93	49	38	87	45	33	78	
Total assets	98.5	20.0	118.5	101.4	18.3	119.7	107.9	17.0	125.0	
Deposits	<i>Total</i>	71.3	12.5	83.8	73.0	11.2	84.3	76.5	11.6	88.1
	Intern	48.9	0.1	49.0	52.4	0.0	52.4	55.7	0.1	55.8
	Extern	22.4	12.4	34.9	20.6	11.2	31.8	20.8	11.4	32.2
Credit portfolio net of	<i>Total</i>	61.6	10.8	72.4	65.3	10.0	75.4	68.3	7.8	76.1
	Intern	44.7	0.0	44.7	50.9	0.0	50.9	54.0	0.0	54.0
	Extern	16.9	10.8	27.7	14.4	10.0	24.4	14.3	7.8	22.1
Equity capital	9.9	2.4	12.3	11.6	2.7	14.3	12.6	3.2	15.9	

Sources: Superintendency of Banks of Panama and IMF staff calculations.

**Table A1.3. Panama: Sample Rating Base of CAMEL Components**

Components	Rating 1	Rating 2	Rating 3	Rating 4	Rating 5
Capital adequacy (CAR)	>=12	9-11.99	8-8.99	7-7.99	<=6.99
Asset quality NPLR	<=1.5	1.51-2.5	2.6-3.5	3.6-5.5	>=5.6
Management efficiency (NER)	40-49.99	50-59.99	60-69.99	70-75	>=75
ROA	>=1	0.9-0.8	0.35-0.7	0.25-0.34	<=0.24
ROE	>=22	17-21.99	10-16.99	7-9.99	<=6.99
Liquidity ratio 1	<=55	56-62.99	63-68.99	69-74.99	>=75
Liquidity ratio 2	>=50	45-49.99	38-44.99	33-37.99	<=32

Source: Khaled A. Zedan and Ghassan Daas (2017).

**Text Box A1.4. Panama: SBP Methodology for the Financial Stability Map**

Dimension	Indicators Used	Additional Indicators for Consideration
Macro-economic risks	GDP growth	Output gap, inflation rate, unemployment rate, public debt to GDP; primary balance to GDP; sovereign EMBIG spreads; IMAE
External risks	Current account; ratio of exports to imports	Current account balance to GDP; gross foreign assets of banking sector to GDP; volatility index (VIX); gross FDI inflows as a share of GDP; change in FDI as share of GDP
Credit risks	Local loan portfolio at risk <sup>1/</sup> as a share of total local portfolio; growth of local loan portfolio	Percentage deviation from the trend for the domestic credit from banks, domestic credit from non-banks, and house prices; percentage change in the bank domestic credit to GDP
Solvency and profitability risks	Difference between ratio of interest income to income generating assets and ratio of interest expense to expense generating liabilities <sup>2/</sup> ; capital adequacy index; return to equity (ROE)	Tier 1 capital to RWA; results from stress tests
Liquidity risks	Ratios of local loan portfolio to local deposits, deposits (excluding related parties) to liquid assets, and interbank funds to liquid assets <sup>3/</sup>	Private domestic credit to private domestic deposits; liquid assets to short-term liabilities; LCR; results from stress tests

Source: Superintendency of Banks of Panama.

1/ Portfolio at risk includes loans classified in categories special mention, subnormal, doubtful and unrecoverable.

2/ Income generating assets include deposits in banks, loans and investments. Expense generating liabilities include deposits and obligations.

3/ Liquid assets include cash and cash equivalent, interbank deposits, and negotiable investments available for sale.

## References

- BCBS. 1999. "Core Principles Methodology". Basel: Bank for International Settlements.  
<https://www.bis.org/publ/bcbs61.pdf>
- BCBS. 2012. "A framework for dealing with domestic systemically important banks". Basel: Bank for International Settlements. <https://www.bis.org/publ/bcbs233.pdf>
- BCBS. 2019. "Integrated Basel Framework". Basel: Bank for International Settlements.  
[https://www.bis.org/basel\\_framework/](https://www.bis.org/basel_framework/)
- BCBS and International Association of Deposit Insurers (IADI). 2009. "The Core Principles for Effective Deposit Insurance Systems". Basel: Bank for International Settlements
- Cervantes, R., Jeasakul P., Maloney J., and L. L. Ong. 2014. "Ms. Muffet, the Spider(gram) and the Web of Macro-Financial Linkages". International Monetary Fund. Working Paper 14/99.
- Dehesa M. 2006. "Public Banks in Panama". IMF. Selected Issues Paper 2006/03, pp. 60-68.
- Demirguc-Kunt, A., Karacaovali, B., and L. Laeven. 2005. "Deposit Insurance Around the World: A Comprehensive Database". World Bank. Policy Research Working Paper 3628.
- EU Directive. 2014. "Bank recovery and resolution". Directive 2014/59/EU  
<https://eba.europa.eu/regulation-and-policy/single-rulebook/interactive-single-rulebook/2602>
- Hong Kong Monetary Authority. 2018. "Designation of Domestic Systemically Important Authorized Institutions". HKMA, Press Release. <https://www.hkma.gov.hk/eng/news-and-media/press-releases/2018/12/20181221-3/>
- IMF, FSB, BIS. 2011. "Macroprudential Policy Tools and Framework"  
<https://www.imf.org/external/np/g20/pdf/102711.pdf>
- IMF. 2018. "The Bali Fintech Agenda: A Blueprint for Successfully Harnessing Fintech's Opportunities"  
<https://www.imf.org/en/Publications/Policy-Papers/Issues/2018/10/11/pp101118-bali-fintech-agenda>
- International Association of Deposit Insurers. 2014. "IADI Core Principles for Effective Deposit Insurance Systems". Basel: IADI.
- International Telecommunication Union. 2018. "Global Cybersecurity Index 2017". ITU Publications.  
[https://www.itu.int/dms\\_pub/itu-d/opb/str/D-STR-GCI.01-2017-PDF-E.pdf](https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-GCI.01-2017-PDF-E.pdf)
- International Telecommunication Union. 2019. "Global Cybersecurity Index 2018". ITU Publications.  
[https://www.itu.int/dms\\_pub/itu-d/opb/str/D-STR-GCI.01-2018-PDF-E.pdf](https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-GCI.01-2018-PDF-E.pdf)

- Slovik P. and B. Cournède. 2011. "Macroeconomic impact of Basel III". OECD, Working Paper 844.
- Stackhouse J. 2018. The ABCs of CAMELS. St Louis Fed. <https://www.stlouisfed.org/on-the-economy/2018/july/abcs-camels>
- S&P Global. March 7, 2019. LatAm turns to Mexico's year-old fintech law as a model for regulation. <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/50081755>
- UNESCAP. 2018. "E-government Development Index 2018". United Nations, New York. [https://www.unescap.org/sites/default/files/E-Government%20Survey%202018\\_FINAL.pdf](https://www.unescap.org/sites/default/files/E-Government%20Survey%202018_FINAL.pdf)
- Urrutia, J. 1989. "The cost of deposit insurance: Derivation of a risk-adjusted premium". Insurance: Mathematics and Economics, vol. 9, pp. 281-290
- Wezel T., Chan-Lau J. A. and F. Columba. 2012. "Dynamic Loan Loss Provisioning: Simulations on Effectiveness and Guide to Implementation". IMF, Working Paper 12/110.
- Wong, E., T. Fong, K. Li and H. Choi, "Loan-to-Value Ratio as a Macro-Prudential Tool – Hong Kong's Experience and Cross-Country Evidence", Hong Kong Monetary Authority Working Paper 01/2011
- Zedan K.A. and D. Ghassan. 2017. "Palestinian Banks Analysis Using CAMEL Model" International Journal of Economics and Financial Issues, 2017, 7(1), 351-357