



PANAMA

SELECTED ISSUES

November 2016

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PANAMA

SELECTED ISSUES

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ASSESSING THE EFFECTIVENESS OF PANAMA'S FISCAL FRAMEWORK¹

Panama adopted a rule-based fiscal framework in 2008. This law, its subsequent amendments, other related laws and by laws defined a rule-based fiscal framework. The implementation of the fiscal framework, however, revealed certain challenges. This note assesses the scope for improving the design and implementation of the fiscal framework in light of best practices.

A. Evolution of the Fiscal Framework

1. A Social and Fiscal Responsibility Law (SFRL) was approved by the National Assembly in June 2008 (Law 34 of June 2008) and became effective in January 2009. The law aimed to institutionalize fiscal discipline and debt sustainability, by setting a fiscal rule that limited the deficit of the Nonfinancial Public Sector (NFPS) to 1 percent of GDP and an indicative target for the NFPS net public debt of 40 percent of GDP to be attained by 2015.

2. The SFRL built in some room of flexibility. A temporary suspension of the deficit ceiling would be initiated in the event that domestic real GDP growth slows to 1 percent or less. In these circumstances, the NFPS deficit would be allowed to increase up to 3 percent of GDP in the current year, 2 percent in the following year, and would need to return to the long-run limit of 1 percent afterward.

3. The SFRL law was modified in June 2009 to allow for a timely countercyclical policy against external shocks. Panama was significantly impacted by the global financial crisis in 2009. Growth slowed substantially, although not enough to qualify for a temporary suspension of the deficit ceiling. On June 26, 2009, Law 32 modified the escape clauses to provide more scope for countercyclical policy. The modified SFRL provided a temporary suspension of the deficit limit in three cases:

- (i) a national emergency declared by the government;
- (ii) a slowdown in domestic GDP growth to 1 percent or less for two consecutive quarters; and
- (iii) a slowdown in world GDP growth to 1 percent or less for two consecutive quarters (or a two quarter average growth of less than 1 percent) and the average rate of growth of GDP in Panama is of 5 percent or less during six consecutive months.

The NFPS deficit ceiling was permitted to increase up to 3 percent of GDP in the case of a national emergency or a domestic growth shock and 2½ percent of GDP in the case of a world growth shock in the first year after the shock, with the adjustment back to the 1 percent deficit distributed over 4 years (instead of 3 years) for all three cases. Furthermore, if the deficit in the first year turned out

¹ Prepared by Fang Yang (WHD).

less than the maximum allowed, the difference could be carried over to the following year, to a maximum deficit in the second year of 3 percent of GDP for national emergency or a domestic growth shock, and 2½ percent of GDP for a world growth shock.

4. Since these modifications, the escape clauses were used twice: in 2009 due to global economic slowdown and in 2011 due to a national emergency. Accordingly, the deficit ceilings of 2009 and 2011 were raised from 1 percent to 2½ percent and 3 percent of GDP, respectively. However, the additional fiscal room was not fully utilized as the actual fiscal deficits turned out to be smaller than the maximum allowed by the modified deficit ceilings.

5. The fiscal framework was revamped by the law establishing the Fondo de Ahorro de Panama (FAP, the Panamanian sovereign

wealth fund) in 2012. The FAP Law (Law 38 of 2012) specified a revised fiscal consolidation path that

reduced the deficit limit from 2.9 percent of GDP in 2012 to 0.5 percent in 2018 and thereafter.

Table 1. Deficit Ceilings as Percent of GDP Provided by Law

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
SFRL Law 2008	1	1	1	1	1	1	1	1	1	1
FAP Law 2012				2.9	2.8	2.7	2	1.5	1	0.5
Actual NFPS Deficit ¹	0.9	1.7	1.9	1.5	2.3	3.2	2.8 ²			

1/ Percent of 2007-base GDP.
2/ Preliminary. The ceiling of 2 percent of GDP of 2015 applies to the adjusted fiscal balance instead of the overall fiscal balance.

6. It also introduced a mechanism to mitigate the impact of potentially volatile canal contributions on budget expenditure. Canal revenue mainly consists of fees per tonnage of transit and dividends to the state as its owner and is to a large extent dependent on world trade developments and behavior of the shipping industry, which are beyond the control of the national authorities. The Panama Canal Authority (ACP) has an independent board that decides on the contribution to the budget after making provisions for future maintenance and investments. At the time the framework was revamped, the canal expansion was on-going and was expected to become operational in 2014. The projected canal contribution to the treasury was around 4 percent of GDP. In order to avoid the volatility of canal contributions affecting government expenditure, any canal contributions above 3.5 percent of GDP would be saved in the FAP starting in 2015. Conversely, the overall fiscal deficit would be allowed to expand by any shortfall of canal contributions to the budget below 3.5 percent of GDP. Thus, the NFPS deficit ceilings stipulated in the SFRL would apply to the adjusted fiscal balance:

$$\text{Adjusted Fiscal Balance} = \text{Fiscal Balance} - (\text{Canal Contribution} - 3.5 \text{ percent})$$

7. The 2012 FAP law also modified the conditions under which escape clauses could be used and eliminated the possibility of carry-over. Temporary suspension of deficit ceilings can be used in the following cases:

- (i) National emergency declared by the Cabinet. In this case the maximum additional deficit cannot exceed 1.5 percent of GDP in the year the emergency occurs or the cost associated with the emergency, whichever is less. This escape clause was triggered in 2013 with the cost of the emergency amounting to less than 0.5 percent of GDP. A supplementary budget and its

associated higher deficit ceiling was approved for 2013 to cover the additional expenditure needs caused by natural disaster.

(ii) Economic deceleration—GDP grows 2 percent or less during two consecutive quarters. In this case, the maximum additional deficit allowed is scaled to the magnitude of the deceleration but capped at 2 percent of GDP. The return to the ceiling should be achieved by the third year with 1/3 of the needed adjustment in each year. The waiver may be maintained for three consecutive years only as long as the rate of growth of real GDP remains below 2 percent.

8. The deficit ceilings have also been changed through one-off amendments to the Law. In 2014, due to overspending in the first half of the year, an amendment of the SFRL deficit ceiling was requested by the administration that took office in July and approved by the National Assembly.

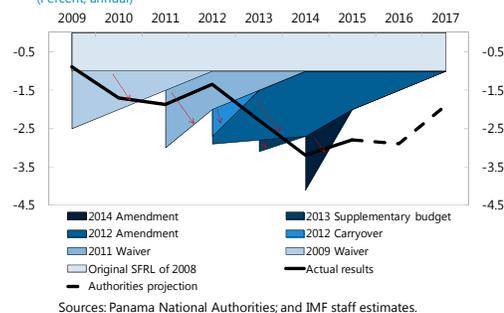
B. Key Characteristics of Well Designed Fiscal Framework

9. Well-designed rule-based fiscal frameworks share a core set of critical components.

Rule-based fiscal framework is defined as a mechanism placing some constraints on fiscal discretion through numerical limits. Fiscal rules can be commitment devices to make deviations from socially desirable targets too costly for policymakers. They can also be signaling tools to help policymakers signal their genuine commitment to sustainable and stabilizing policies. They can also serve to anchor expectations, thus reducing uncertainties and risk premia. Well-defined rule-based fiscal framework are characterized by the following features:

- Clear and simple set of operating fiscal variables, including numerical target or ceiling (or a combination thereof) defined in terms of a specific fiscal indicator (or a combination thereof); a clear definition of the fiscal objectives or challenges the rule aims at addressing, which should be consistent with other macroeconomic policies; and an unambiguous and stable link between the numerical targets or ceilings and the ultimate fiscal objectives.
- Sufficient flexibility to respond to shocks. The rule should provide ex-ante sufficient room for a stabilizing fiscal response and a gradual adjustment to the fiscal targets, while avoiding procyclicality and preserving credibility.
- Clear and well-designed institutional arrangements. They include effective management and monitoring mechanisms, transparency and accountability provisions, and enforcement procedures.

Chart 1. Deficit Ceilings as % of GDP
(Percent, annual)

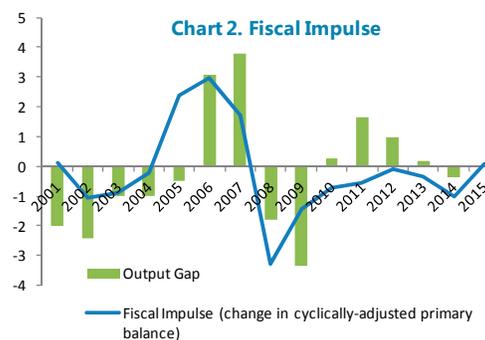


C. Assessing the Fiscal Framework of Panama

10. The fiscal framework of Panama has played an important role in enhancing fiscal discipline since its establishment in 2009. Since the current fiscal framework became effective in 2009, the primary balance and debt-to-GDP ratio of the NFPS on average have improved significantly compared with those in 2000–2008. The fiscal impulse given the output gap also shows that fiscal policy has been less pro-cyclical in 2009–2015 than in 2001–2008.

	2000-2008	2009-2015
Average NFPS Fiscal Balance 1/	-1.5	-2.0
Average NFPS Primary Balance	-5.8	-0.2
Average NFPS Structural Balance 2/	-5.9	-0.2
Average NFPS Debt	60.2	39.4

1/ In 2000-2008, budget relied heavily on one-off privatization proceeds, resulting in better overall fiscal balance but worse primary and structural balance.
2/ Cyclically adjusted primary balance.
Source: Panama National Authorities and IMF Staff calculation.



Clarity

11. The fiscal framework contains many of the essential elements of a well-designed rule-based fiscal framework. In particular, the fiscal framework in Panama consists of a relatively clear and simple set of operating fiscal variables. The fiscal rule provides ceilings on the path of the operating variable in the medium term, initially defined as the fiscal deficit of the NFPS, and starting in 2015, the adjusted deficit of the NFPS. The path of the deficit ceilings in the medium-term indicated the government's intention to consolidate the fiscal stance over time.

12. However, the limit on the adjusted balance is based on an overestimation of the canal revenue and therefore leads to a permanent deficit bias. Starting in 2015, the deficit ceiling would apply to the adjusted fiscal deficit instead of the overall fiscal deficit. Due to delays of the canal expansion project, the faster than anticipated output growth and the GDP rebasing², the canal contributions are now projected to be only about 2.5-3 percent of GDP in the medium term instead of 4 percent. It is unlikely that canal revenue contribution would reach 3.5 percent of GDP in the foreseeable future. The misalignment between the threshold and the projected revenue contribution from the canal allows a permanently looser fiscal position than originally intended while eliminating the opportunity to save in the sovereign wealth fund.

13. The adjusted balance is significantly less transparent. Unlike the overall fiscal balance, the economic significance of the adjusted balance—in particular, when the threshold is misaligned with plausible estimates of canal contributions—is less well-understood. With the additional fiscal room, the overall fiscal deficit is now expected to be about 1 percent of GDP higher per year than

² The exercise encompasses changing the base year from 1996 to 2007 as well as enhancing the computation methodology. The upward revision to nominal GDP is between 5 to 8 percent, depending on the year.

originally envisaged. Although medium-term fiscal policy entails a consolidation of about 2 percentage points of GDP in five years, the link of adjusted fiscal deficit with the debt ratio cannot be clearly established.

14. A clearly-defined medium-term fiscal anchor would help strengthen the fiscal framework. The SFRL established reducing the net debt of the NFPS to no more than 40 percent of GDP as the “indicative target”.³ This objective, however, is not supported by enforcement mechanisms, which may weaken the compliance incentive. On the other hand, there is strong incentive for Panama to maintain its investment grade as the country has benefited significantly from the lower financing cost in recent years. Net debt is defined as NFPS gross debt net of the assets of the sovereign wealth fund. The definition of net debt does not encompass a range of relevant government assets and liabilities. In this regard, an assessment of the consolidated assets and liabilities of the public sector and an analysis of selected contingent liabilities would help ensure the debt target is consistent with maintaining adequate buffers, especially in the context of a dollarized economy.

15. Within the deficit ceiling, the composition of expenditure could have different economic implications. Public sector investment has been an important driver of growth in 2007-2013 but started to contract in 2014 while current expenditure kept growing at faster rates than nominal GDP. A rapid increase in current expenditure that leads to a prolonged contraction of capital expenditure, in order to meet deficit ceilings, could hurt growth and productivity in the long run.

Box 1. Optimal Debt Level

Economic theories indicate a range of factors that could impact optimal debt. These include: the relationship between growth and interest rates, demographic trends, the distortionary effects of different taxes, the parameters of the government's intertemporal social welfare function (in particular, the degree of aversion to risk and inequality across generations), the type and extent of market failures, the degree to which consumers are forward-looking, the size and distribution of shocks, and whether government expenditure is either permanent/structural or temporary. But theory does not indicate which of these factors are most important.

Most theoretical models of optimal fiscal policy imply movements in debt ratio in response to shocks which are not related to the business cycle. A justification for aiming for stable level of debt over the cycle may be credibility: a target value for the debt-to-GDP ratio which is stable may make monitoring easier and hence improve its credibility. For developing and emerging economies, 40 percent is often suggested as the prudential limit for debt-to-GDP ratio.

³ The net debt was about 36 percent of GDP at end-2015 and is projected to decline to about 32 percent of GDP by 2020.

Flexibility

16. The fiscal framework includes escape clauses that provide flexibility to deal with shocks beyond the authorities' control. The circumstances under which the fiscal balance may exceed the ceilings are specified by the SFRL, as modified by the FAP Law. The escape clauses allow a temporary waiver of the deficit limit in the following cases:

- National emergency declared by the government. In this case, the additional deficit for the fiscal year when the emergency occurs cannot exceed 1.5 percent of GDP or the cost of the emergency, whichever is less.
- GDP grows 2 percent or less during two consecutive quarters, based on figures published by the National Institute of Statistics and Census (INEC). The maximum amount of the waiver allowed is tiered as shown in the table. The waiver request has to be substantiated by a report prepared by the Ministry of Economy and Finance (MEF), and approved by the National Assembly.

GDP growth	Maximum Additional Deficit/GDP
1.1%-2.0%	1.0%
0.0%-1.0%	1.5%
Negative growth	2.0%

Source: Law 38 of 2012.

When there is a temporary waiver of the maximum deficit ceiling on the basis of economic deceleration, the waiver may be maintained for a maximum period of 3 consecutive years as long as there is conclusive proof that the rate of growth of GDP is below 2 percent. The return to the ceiling should be achieved within 3 years with 1/3 of the adjustment needed:

	First year of temporary Suspension	Second year	Third year
Proportion of Adjustment	1/3	1/3	1/3

Source: Law 38 of 2012.

17. The flexibility embedded in the fiscal framework may give rise to unintended procyclicality of fiscal policy. The estimation of output is susceptible to identification lags. Output growth in the escape clauses refers to ex post announcement by the INEC. Since INEC does not conduct macroeconomic projections, it would not be possible to take preemptive counter-cyclical fiscal policies. On the contrary, the identification lags and possibly the consequent implementation lags inherent in the political process may result in procyclicality of the fiscal policy.

Institutional Arrangements

18. Effective institutional arrangements impact the successful implementation of a fiscal framework. They include a clear statutory basis; effective management and monitoring mechanisms to prevent and assess deviations from the numerical target or ceiling; transparency and accountability provisions to make the cost incurred by policy makers explicit if they deviate from the rule; and enforcement procedures to ensure policy makers incur costs when deviations occur.

19. Panama's fiscal framework is supported by a relatively high level of legislation, the SFRL. Any changes, including the requests for exemptions from the deficit ceilings have to be approved by the National Assembly. The SFRL also requires that every administration adopt a strategic plan within six months of coming to office, to lay out the economic and social development strategy. The MEF has to prepare and publish each year by end-April a five-year medium-term fiscal plan with the first year corresponding to the following fiscal year to serve as the basis for the preparation of the budget which is presented to the National Assembly by end-July.

20. Transparency in forecasting and analysis is a prerequisite for effective monitoring. In Panama, the government has gone to some length to publicize and explain its fiscal rule and policy approaches to the financial market. However, key assumptions underlying the forecast are not published in the budget laws and the analytical basis for the fiscal rules has not been explained and discussed in public domain. The authorities plan to include macroeconomic analysis and assumptions in the 2018 budget documentation and the 2018-2022 medium-term fiscal plans.

21. Transparency also requires the government to apply best-practice accounting methods. The use of deferred payments schemes ("turnkey" projects) may not reflect the timing of real capital expenditure activity. The contractors of turnkey projects are responsible for obtaining financing. The budget recognizes capital expenditures when the government makes payments to contractors upon completion of their work. For example, the published fiscal result for the fourth quarter of 2015 shows an increase in capital expenditure of 141.7 percent over 2014-Q4, which largely reflects payments made to projects contracted during previous years. The effects of real public investments on the economy are difficult to gauge when the reporting does not align with the timing of actual investment activity. In addition, the deferred recognition of capital expenditure could undermine budget planning and the transparency of fiscal commitments. Starting in 2016, the government has begun publishing deferred payments, which should provide useful data for fiscal policy and economic analysis.

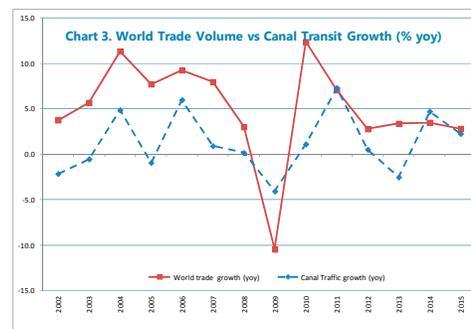
22. Accountability and correction mechanisms are also important institutional components of an effective fiscal framework. The SFRL requires the government to publish a detailed explanation for a failure to meet the fiscal target and the magnitude of the fiscal adjustments needed to resume compliance with the fiscal target. However, this provision is yet to be implemented. The SFRL also does not contain financial or administrative sanctions for noncompliance with the fiscal rule. The SFRL does provide that civil servants in charge of decision making, authorization or execution should be accountable for their decisions, but fails to provide implementable procedures.

23. The MEF is the main institution that can correct deviations from the numerical targets, although corrective actions are not triggered automatically. The ceilings on the deficit have been frequently suspended and amended, which indicates the relative low cost and lack of sanctions for relaxing the fiscal rule. In theory, the SFRL can prevent the submission or adoption of a budget at odds with the fiscal rule. The MEF is the main institution responsible for monitoring the implementation of the budget. It prepares monthly annual projections based on actual revenue collections and the implementation of the budget. MEF may suspend the disbursement of resources,

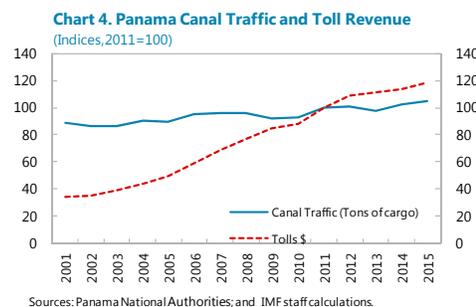
restrict access or freeze the use of public resources to a public entity when it commits or contracts expenses not contemplated in the budget or does not comply with the requirements of the law. If during any time of the year the MEF considers that total revenues will be less than the total expenditure or that the actual payments exceed those in the budget, it will prepare a plan to contain or reduce public expenditure. However, the Law does not contemplate a trigger for the correction mechanisms to kick in.

D. Do Canal Revenues Share the Same Characteristics with Revenues from Resources?

24. The canal revenue shares little similarities with resource revenue. Resource-rich countries face unique challenges to macro-fiscal management due to the volatility and uncertainty of revenue from these resources. However, the canal revenues behave differently than revenue from resources. Although canal transit is linked with world trade development, it is less volatile than the swings in world trade volume changes.



25. The price of the canal services is less likely to experience large swings compared with commodity prices. The demand for the canal services is also less elastic to prices within a reasonable range. Canal revenue is therefore less volatile compared with revenue from natural resources and commodities.



26. Even with the potential competition from alternative routes, canal revenue is not expected to be exhausted in the foreseeable future. Nevertheless, the canal revenue is likely to have macroeconomic impacts. In order to assess the macro-fiscal stance of the country, it would be helpful to complement the conventional fiscal indicators and tools with non-canal indicators to better understand the behavior of the canal revenue and its potential risks.

E. Options to Strengthen Panama's Fiscal Framework

27. The analysis suggests that Panama's fiscal rule would benefit from a number of adjustments. The main areas of improvements could be: (i) reviewing the rule and adjustment for canal revenue to avoid a deficit bias and protect the government's spending capacity from volatility; (ii) avoiding unintended procyclicality; (iii) strengthening the monitoring and transparency mechanisms; and (iv) enhancing the accountability and enforcement procedures.

28. Based on the analysis of the previous sections, the mechanism to smooth government expenditure could be reviewed and updated. Given that canal revenue has not been very volatile, the fiscal rule could be reviewed to determine if it is useful to adjust the deficit ceiling for the

deviation of the actual canal contribution from an estimate of the “structural” contribution. If the adjustment is warranted, the estimate of the structural canal contribution (currently 3.5 percent of GDP) could be updated. This estimate could also be updated periodically by an independent body of experts. In this regard, the Chilean experience of having an expert committee to review the price of copper may be a useful example. Adding an expenditure rule to the current fiscal deficit rule, such as by capping the annual real growth of primary current expenditures, could mimic a structural fiscal rule not only on canal revenue but on all central government revenues.

29. Unintended pro-cyclicality could be reduced. Options could include (i) enhancing the macroeconomic projection and analysis capacity; (ii) reviewing the conditions under which the escape clauses could be triggered; and (iii) adopting best practice accounting methods that better reflect expenditure commitments and the timing of investment activities.

30. The transparency mechanism could be enhanced by allowing the stakeholders more access to information. The government could improve the quality and relevance of information on budget formulation, execution and the performance under the fiscal rule. This would help educate the public and National Assembly of the budgeting process to promote a healthy and informed discussion of fiscal policy.

31. One option to foster transparency and accountability is to establish an independent fiscal agent or a fiscal council. A fiscal council is a permanent agency with a statutory or executive mandate to assess publicly and independently from partisan influence. A fiscal council can provide analytical work on government’s fiscal policies, plans and performance against macroeconomic objectives. In addition, a fiscal council can also: (i) contribute to the use of unbiased macroeconomic and budgetary forecasts in budget preparation, and (ii) facilitate the implementation of fiscal policy rules.

32. Fiscal councils therefore vary in terms of institutional models, remits, and tasks. The design of each council ultimately reflects country-specific characteristics, such as available human and financial capacities, political traditions, and the causes for excessive deficits and debts. However, all of them share the ultimate objective of promoting sound fiscal policies through independent oversight. At a minimum, a fiscal council should have a monitoring role, involving the typical tasks of a watchdog: ex-ante assessment of the consistency between fiscal plans and the objectives of the government, and analysis of long-term sustainability, and an ex-post evaluation of fiscal performance against objective and targets. In addition, a fiscal council should be mandated to perform tasks aimed at addressing specific sources of deficit bias.

Table 5. Mapping the Sources of Excessive Deficit into Tasks of a Fiscal Council

	Causes and manifestations of the deficit bias	Tasks of the fiscal council
Policymakers	Myopia, re-election concerns, partisanship: overoptimistic revenue forecast, unrealistic spending estimates, efforts to circumvent fiscal rules (creative accounting).	Produce unbiased macro-fiscal forecasts or at least assess official forecasts; analysis of short and long-term implication of current policies, costing fiscal measures; monitoring of compliance with fiscal rules, report on government statistics integrity.
	Time inconsistency (policies that were agreed to ex ante are not adhered to ex post).	Examine fiscal outcomes in light of government commitments; monitor compliance with fiscal rule.
	Imperfect information: underestimation of risks and costs, overoptimistic views on growth, misperception of the government's budget constraints (notably in cases of abundant commodity revenues), lack of timely data.	Analysis of complex issues such as fiscal sustainability, intergenerational equity and fiscal risks analysis; assessments of long term trends, and possibly recommendations on appropriate of fiscal policy,
	Asymmetric information (lack of transparency); insufficient background analysis and information received by the legislative power (weakened accountability)	Report on a regular basis to Parliament and provide response to questions; contribute to legislative debate on fiscal matters
Voters	Imperfect information: misperception of the government's budget constraint	Provide unbiased assessment of medium and long-term sustainability; raise public awareness on fiscal issues.
	Neglect for future generations and impatience	Impact analysis of unsustainable policy paths and costs of adjusting to the intertemporal budget constraints.
Source: IMF (2013).		

33. To be effective, a fiscal council should be independent. The usefulness of a fiscal council relies on its ability to communicate an independent assessment of fiscal policy without interference from the government or fear of being disbanded. To increase the likelihood of independence, the council could be established by high-ranking law. The selection of its members should be merit-based and, preferably, would be elected by the legislature. The terms of office of the members should be longer than the political cycle and dismissal procedures should be limited to avoid dismissal for political or partisan reasons. Independence would also be increased if the council had a budget to support its own technical staff.

Box 2. Increasing Interest in Fiscal Councils

Unlike fiscal authorities, fiscal councils work mainly through influence and persuasion in the public debate. Experience of other economies suggests that these councils can influence the conduct of fiscal policy through independent analysis, assessments, forecasts, and possibly, recommendations.

The number of fiscal councils has increased rapidly. From only one in 1960—the Netherlands Bureau for Economic Policy Analysis, also known as the Central Planning Bureau—the number of councils has surged since the 2008-09 crisis. By 2014, there were 38 fiscal councils (fiscal agencies). Although most of established fiscal councils are in advanced economies, particularly in Europe, there is growing interest in emerging markets and developing economies. This increasing interest in fiscal councils is likely to continue, particularly in Europe, where new legal requirements mandate most European Union member states to establish national independent bodies to monitor compliance with fiscal rules and produce or at least assess or validate macroeconomic and budgetary forecasts.

F. Challenges that Affect the Design and Implementation of the Fiscal Framework

34. A comprehensive analysis of public debt sustainability and an assessment of major fiscal risks and contingent liabilities would be important inputs to the design of the fiscal framework. Unfunded liabilities of the defined benefit pension system may eventually crowd out other components of public spending. The exclusively defined benefit pension system started to incur losses in 2015. Actuarial studies indicate that absent parametric reform, the pension system's reserves will be depleted in about a decade and pension obligations would then impose fiscal pressure of 1-2 percent of GDP.

35. Panama also faces other fiscal risks. For instance, the external debt of some public enterprises is not included in the Non-Financial Public Sector. Other contingent liabilities could arise from the financial sector, natural disasters, and litigation. The SFRL requires that the budget documentation includes a debt sustainability analysis, and an assessment of fiscal risks and contingent liabilities. These requirements are yet to be implemented in practice.

G. Conclusion

36. This paper assesses Panama's fiscal framework and fiscal rules relative to best practices. After adopting a rules-based fiscal framework in 2009, the structural deficit and net debt of the NFPS have declined. Nonetheless, there are options to better align the framework with best practices, including to reduce unintended procyclicality, increase transparency, and improve accountability. An independent fiscal council could help assess budgetary assumptions, evaluate performance, communicate fiscal objectives and outcomes, and provide analytical inputs to periodically review the design of the rule. Complimentary structural reforms and long-term fiscal risks would also need to be assessed as inputs to the framework to ensure fiscal objectives are achieved.

References

- Beetsma and Debrun (2016), *Fiscal Councils: Rationale and Effectiveness*, IMF Working Paper No. 16/86, Washington: International Monetary Fund
- Celasun, Oya et al (2015) *Fiscal Policy in Latin America: Lessons and Legacies of the Global Financial Crisis*, IMF Staff Discussion Note (SDN/15/06)
- Cordes et al (2015) *Expenditure Rules: Effective Tools for Sound Fiscal Policy?* IMF Working Paper No. 15/29, Washington: International Monetary Fund
- Debrun, Xavier, and Tidiane Kinda (2014), *Strengthening Post-Crisis Fiscal Creditability: Fiscal Councils on the Rise—A new Database*, IMF Working Paper No. 14/58, Washington: International Monetary Fund
- International Monetary Fund (2009), *Fiscal Rules: Anchoring Expectations for Sustainable Public Finance*, Washington: International Monetary Fund
- International Monetary Fund (2013), *The Functions and Impact of Fiscal Councils*, Washington: International Monetary Fund
- Kopits, George, and Steven Symansky (1998), *Fiscal Policy Rules*, IMF Occasional Paper No. 162, Washington: International Monetary Fund

ASSESSING LIQUIDITY BUFFERS IN THE PANAMANIAN BANKING SECTOR¹

A. Executive Summary

1. This paper assesses the resilience of Panamanian banks' to (i) a very severe short-term, and (ii) a significant long-lasting liquidity shock scenario. Short-term liquidity buffers are evaluated by approximating the Liquidity Coverage Ratio (LCR) defined in the Basel III accord. The specific risk of losing a substantial part of foreign funding in the context of de-risking by major international banks is analyzed through a conventional liquidity stress test scrutinizing several layers of liquidity across maturity buckets.

2. Data limitations force us to rely on a number of simplifications and approximations. Currently the supervisor collects limited detail on the liquidity risk profile of bank balance sheets. In the LCR calculations we use ancillary information to fill in the data gaps, and conduct bound tests to communicate the uncertainty around our estimates. Similarly, in the conventional liquidity stress test certain funding sources are aggregated into a broader category owing to the lack of more granular data.

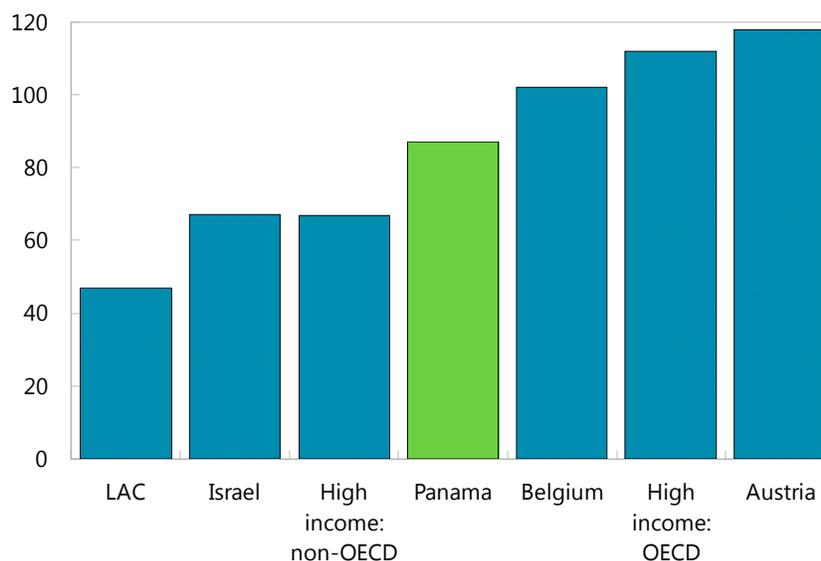
3. The results of the investigation point to some vulnerabilities. Although internationally the LCR requirement will be fully implemented only in 2019, our approximations indicate that about half of Panamanian banks would need to adjust their liquid asset portfolios to meet current LCR standards. And while most banks would be able to meet funding outflows in the stress test scenario contemplating a considerable loss of foreign funding, a number of banks would have to use up all of their liquidity buffers, including less liquid instruments, and a few even face a final shortfall.

B. Introduction and Motivation

4. Since Panama has a sizable and globally-integrated banking sector, ensuring financial stability is essential for macroeconomic stability. Consistent with Panama's role as a financial center, the national banking system's assets amounted to 189 percent of GDP at the end of 2015.² Financial depth, as measured by domestic credit-to-GDP, is comparable to levels in some advanced economies and much higher than the regional average (Chart 1). More than half of the banks operating in the country are foreign, and banks tap external markets both for funding and for investment opportunities. Given the importance of the financial system for the domestic economy, adequate monitoring and regulation of risks, including those stemming from liquidity mismatches, is key.

¹ Prepared by Metodij Hadzi-Vaskov, Andras Komaromi (both WHD), and Torsten Wezel (MCM).

² The National Banking System (Sistema Bancario Nacional) excludes the international license banks ("offshore" banks) that are not allowed to carry out banking activities with domestic residents. In this paper, references to the banking sector should be understood as the national banking system.

Chart 1. Domestic Credit to Private Sector by Banks (% of GDP)

Source: World Development Indicators

5. Many countries rely on a formal financial safety net and an effective interbank market to enhance the banking sector's resilience to liquidity shocks. Although maturity transformation is an inherent part of financial intermediation, most countries' financial stability framework includes institutional arrangements and market-based solutions to mitigate liquidity risk. Deposit insurance schemes reduce the ex-ante probability of bank runs. Lender of last resort (LOLR) facilities can provide ex-post support to prevent illiquidity at an individual bank from unnecessarily leading to its insolvency and to avoid contagion effects. Similarly, a well-functioning interbank market can be instrumental in managing idiosyncratic liquidity shortages by redistributing aggregate liquidity holdings to banks under temporary pressure.

6. In the absence of deposit insurance and a lender of last resort, Panamanian banks have to self-insure against abrupt shifts in their liquidity needs. Panama is the only country in the region which has neither a LOLR facility nor a deposit insurance arrangement. Ecuador and El Salvador, the other fully dollarized economies in Latin America, have maintained a financial safety net after replacing their national currencies with the US dollar.³ In addition, market mechanisms do not seem to operate smoothly in allocating liquidity among Panamanian banks either. The interbank market is segmented, particularly when under stress, as the bigger foreign banks tend to lend only to the larger domestic banks. The market froze completely during the 2009 downturn. Against the backdrop of missing public sector safety nets and underdeveloped interbank markets, banks should

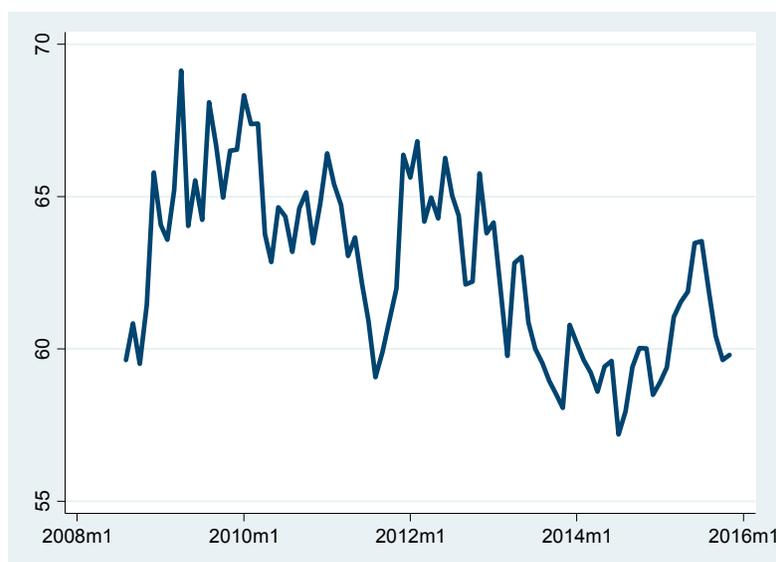
³ Both countries have deposit insurance schemes. Ecuador has a liquidity fund for banks, while El Salvador is in the process of implementing a lender of last resort facility. It is important to note that these two countries had their own currencies and central banks before they dollarized in the early 2000s. These central banks continue to exist and provide the institutional setting for the liquidity facilities. Panama, on the other hand, adopted the dollar as legal tender in 1904 immediately after becoming independent from Colombia. Hence, it has never had an institution with the classical central banking function of emergency liquidity provision.

hold sufficient liquidity buffers on their balance sheets to cope with potentially large liquidity shocks.

7. Based on the local supervisory framework, the banking sector appears highly liquid.

Panama's New Banking Law of 2008 stipulates that banks must hold a minimum amount of liquid assets, but the technical details of compliance are delegated to the Superintendency of Banks (SBP). Fulfilling this mandate, the SBP issued a regulation that same year that defines the Legal Liquidity Index (LLI) as a measure of liquidity and sets a 30 percent minimum requirement on liquid assets as a share of qualifying deposits.⁴ The SBP relies heavily on the LLI to monitor and to communicate to the public the liquidity conditions in the banking sector.⁵ According to this official metric, bank liquidity has been ample since 2008. Recently the LLI of the whole banking system have fluctuated around 60 percent – twice the required level (Chart 2).

Chart 2. Evolution of the Legal Liquidity Index



Source: Superintendency of Banks (SBP)

8. Panama's historical experience of financial stability reinforces the perception of a highly liquid, self-disciplined and resilient banking sector. The only systemic banking crisis in the last 45 years was the crisis of 1988-89 which was political in origin.⁶ There has not been any systemic

⁴ The term "New Banking Law" refers to Executive Decree N° 52 dated April 30, 2008. Liquidity related regulations are covered in Chapter VI of this law. The LLI is defined by the SBP in Rule 4 of 2008 dated July 24, 2008. The 30 percent minimum requirement applies to all general license banks and international license banks that are subject to the home supervision of the SBP. Banks have to submit a liquidity report to the SBP at the end of each week to demonstrate their compliance.

⁵ When assessing the liquidity of individual banks, the SBP does not rely solely on the LLI, but also carefully examines the bank's risk management framework and how liquidity risk is mitigated.

⁶ Panama's modern banking history dates back to 1970 when the first banking law created the international banking center. The stability of the banking system was put to the most severe test in 1988 when, in the context of the

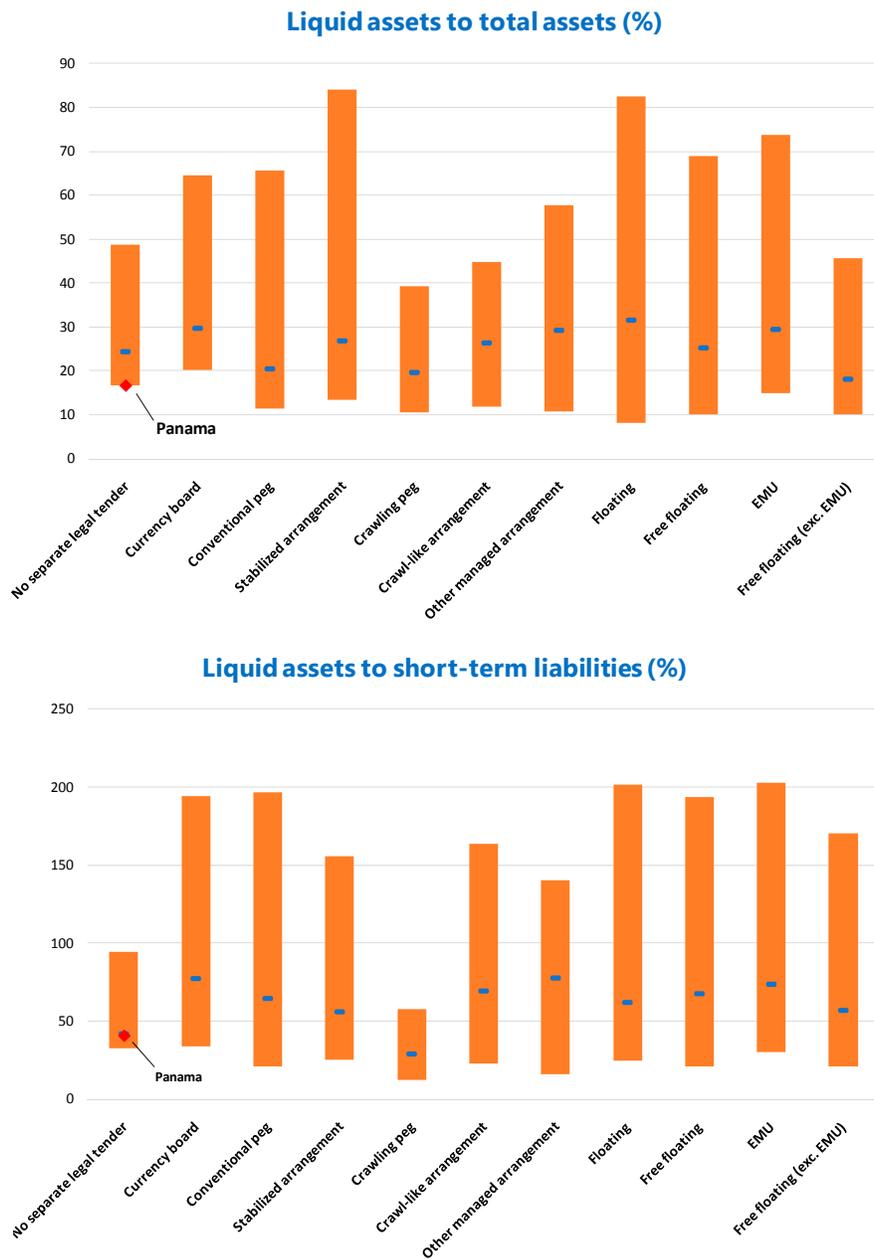
(continued)

banking crisis caused by contagion from foreign financial markets nor from excessive risk taking. Bank failures have been isolated cases with no contagion effects to other domestic banks. This exceptional track record of banking system stability shapes the views of Panamanian regulators, bank executives and outside observers as well. It is widely believed that the lack of backstops reinforces extreme market discipline so that banks are very conservative at managing their risks, including by holding a large amount of liquidity.

9. However, benchmarking based on publicly available cross-country measures suggests that aggregate liquidity in Panama’s banking system is low relative to other comparable countries. It is challenging to compare liquidity levels across countries, because the definition and measurement of liquidity vary considerably across jurisdictions. The Financial Soundness Indicators (FSI) dataset, maintained by the IMF, is the most comprehensive publicly available multi-country source of liquidity ratios that are designed to follow a harmonized methodology. Since the IMF only sets the reporting standard and member countries submit their own data, there is still considerable uncertainty about the cross-country comparability of these measures. Nevertheless, the FSIs show that the aggregate ratios of liquid assets to total assets and liquid assets to short-term liabilities in Panama’s banking sector are relatively low in international comparison. In fact, all countries with similar exchange rate regimes report higher liquidity as a share of total assets (Chart 3).

“Noriega crisis”, the U.S. government froze official Panamanian deposits in the United States, suspended the clearing arrangement between the National Bank of Panama and the Federal Reserve, and withheld payments for use of the Panama Canal. After a 9-week bank holiday and following the U.S. release of government funds the banking system quickly recovered, with only three bank failures.

Chart 3. Cross-Country Comparison of Aggregate Liquidity Holdings



Sources: Financial Soundness Indicators (FSI), Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER), and Fund staff calculations. Note: Orange bars show the range of liquidity ratios and blue marks represent the average.

10. Given this conflicting evidence, one goal of this paper is to carry out an in-depth analysis of bank liquidity buffers using a framework that is better aligned with international standards. In order to reconcile the official view of high liquidity based on the LLI and the relatively low liquidity suggested by FSI data, we examine the construction of these measures. Closer inspection reveals a number of differences. First, the definition of liquid assets is quite broad in the official LLI, as it includes some lower-rated securities without any haircut and all expected inflows within 6 months. The FSI dataset has a 3-month horizon and a more stringent definition of liquid securities. Second, each liquidity ratio has a different denominator. The LLI measures liquid assets as a share of certain types of deposits, while the FSI uses total assets and, alternatively, total short-term liabilities as the reference point. Importantly, neither measure is in line with the Liquidity Coverage Ratio or the Net Stable Funding Ratio which are the *de facto* international best practices defined by the Basel Committee on Banking Supervision (BCBS).

11. A second goal is to ascertain whether Panamanian banks maintain sufficient liquidity to meet a substantial outflow of foreign funding triggered by a loss of correspondent banks. Reflecting the global trend of de-risking, large foreign banks have reduced their correspondent banking services to some smaller Panamanian banks. According to the SBP, the total number of correspondent banking relationships has been stable. Nonetheless, U.S. and European banks have cut some ties particularly with smaller Panamanian banks that are viewed as not generating sufficient business so as to merit continuation of services, considering the rising due diligence costs and risk-return aspects. The consequences of losing many or even all correspondent banks can be severe: Local banks may lose access to credit lines, cease to be able to carry out transactions abroad, and in the worst case face pre-emptive withdrawals by foreign clients worried about access to their deposits under such circumstances.

12. To this end, this paper takes a fresh look at the adequacy of liquidity buffers from two different angles. First, we analyze banks' short-term resilience to severe liquidity shocks by approximating, as well as possible, the Liquidity Coverage Ratio (LCR) defined in the Basel III standard. Second, in a conventional liquidity stress test we take stock of the different layers of liquidity over a prolonged period of hypothetical funding outflows.

C. Short-term Liquidity in Light of the LCR

13. The Basel Committee developed the LCR to promote the short-term resilience of the liquidity risk profile of banks. During the early "liquidity phase" of the financial crisis that began in 2007, many banks—despite adequate capital levels—still experienced difficulties because they did not manage their liquidity in a prudent manner. In response, the Basel Committee developed an internationally standardized framework for liquidity regulation and monitoring, including, most prominently, the LCR. The LCR's objective is to ensure that banks maintain an adequate stock of unencumbered high-quality liquid assets (HQLA) that can be converted easily and immediately in private markets into cash to meet their liquidity needs for a 30 calendar day liquidity stress scenario (BCBS, 2013).

14. The LCR is a data-intensive prudential measure. The LCR takes a granular view of the liquidity of assets issued by various entities, as well as the stability of different funding sources and the likelihood of receiving scheduled inflows of cash. The standard distinguishes three categories of HQLA—Level 1, Level 2a and Level 2b—with different haircuts and caps applied to each of them. For example, highly rated Level 1 sovereign securities can be counted at their market value, while lower medium grade Level 2b corporate debt securities get a 50% haircut. In addition, Level 2a and 2b assets can only comprise a certain share of the stock of HQLA so that banks are forced to hold a minimum amount of the highest quality Level 1 assets. When calculating outflows, retail deposits are more stable than wholesale deposits from non-financial corporations, while funding from other financial institutions is assumed to be highly vulnerable to sudden withdrawals. The treatment of expected cash inflows also varies by the type of counterparty.⁷ Because of the heavy data requirements on credit ratings, issuing entities, and counterparties, the LCR imposes a considerable burden of data collection and reporting on banks and regulators.

Approximating the LCR

15. Due to data limitations, the analysis imposes assumptions and approximations to obtain the baseline LCR estimates and the surrounding uncertainty. The data in the liquidity reports that the SBP currently collects from banks is insufficient to calculate the LCR.⁸ We therefore added the essential breakdowns, and created a mapping from the SBP template to the LCR categories. Using this mapping, we take two complementary approaches to address the data gaps. First, we derive bounds on the bank-level LCR distribution by analyzing extreme scenarios in which the missing data is replaced with best-case and worst-case values. Second, for calculating the baseline results, the technical staff of the SBP provided their best estimates of the missing breakdowns based on data collected for other purposes, including the results of on-site supervisory inspections (Box 1). It is important to emphasize that our methodology is only an adaptation of the LCR standard; therefore, the results are only indicative and should not be compared to any other jurisdictions.

⁷ For the technical details of the LCR standard, see BCBS (2013).

⁸ With technical assistance from the Bank of Spain, the SBP has identified the necessary adjustments in their data collection procedures to comply with Basel III standards. However, the new methodology has not been implemented yet.

Box 1. Panama: Mapping the SBP's Liquidity Report to the LCR

The liquidity reports and balance sheets that the SBP collects from banks lack the necessary detail along several dimensions:

- The LCR has a 30-day horizon, while the LLI lumps together inflows and outflows within 186 days.
- The LCR uses a relatively fine breakdown of credit ratings, while the LLI distinguishes only investment grade and below investment grade securities.
- The LCR assumes different run-off and flow-in rates for retail, non-financial wholesale and financial counterparties, while the LLI report distinguishes only bank and non-bank funding.
- The LCR considers all sources of funding in the stress scenario (including all notes, bonds and other debt securities issued by the bank), while the LLI only considers certain types of deposits.

To bridge the data gaps, we constructed a template that augments the SBP reports with the essential details. The Box table in this box shows a sample from this template. Each boldfaced line comes directly from the existing reports, while the inserted breakdowns allow us to map categories to the LCR.

The technical staff at the SBP completed the survey for each bank. Some items were readily available from other reports. For example, the capital adequacy reports contain information on the credit rating of securities holdings (these being a necessity for the calculation of risk-weighted assets). Similarly, banks report the breakdown of deposits by maturity and type of counterparty. In other cases, SBP staff used estimates to allocate total amounts between the subcategories. This was the case, for example, for the maturity and sectoral distribution of loan receivables.

REPORTE DE LIQUIDEZ

PASIVOS

Depósitos a la Vista No Bancarios

- Minorista (incluye depósitos de pequeños negocios)
- Corporaciones no financieras, estados soberanos, etc.

Depósitos a Plazo No Bancarios hasta 186 días

- Depósitos a Plazo No Bancarios hasta 30 días
 - Minorista (incluye depósitos de pequeños negocios)
 - Corporaciones no financieras, estados soberanos, etc.
- Depósitos a Plazo No Bancarios desde 31 hasta 186 días

Depósitos a Plazo de Bancos hasta 186 días

- Hasta 30 días
- Desde 31 hasta 186 días

Depósitos a Plazo de Otras Instituciones Financieras hasta 186 días

- Hasta 30 días
- Desde 31 hasta 186 días

ACTIVOS

Obligaciones con grado de inversión emitidas por Gobiernos Extranjeros

- AAA to AA-
- A+ to A-
- BBB+ to BBB-

Obligaciones con grado de inversión emitidas por Org. Financieros Intern.

- AAA to AA-
- A+ to A-
- BBB+ to BBB-

Obligaciones con grado de inversión de empresas privadas nacionales

- AAA to AA-
- A+ to BBB-

Obligaciones con grado de inversión de empresas privadas extranjeras

- AAA to AA-
- A+ to BBB-

Obligaciones de Agencias Priv. y Gub. Extranjeras largo plazo AAA

- Agencias Privadas Extranjeras
- Agencias Gubernamentales Extranjeras

Depósitos a Plazo en Bancos en Panamá hasta 186 días

- Hasta 30 días
- Desde 31 hasta 186 días

Depósitos a Plazo en Bancos en el Extranjero hasta 186 días

- Hasta 30 días
- Desde 31 hasta 186 días

Obligaciones de Bancos Pagaderas en Panama hasta 186 días

- Hasta 30 días
- Desde 31 hasta 186 días

Abonos de Obligaciones Pagaderas en Panama (Vcto. < 186 Días)

- Hasta 30 días
 - Instituciones financieras
 - Otros
- Desde 31 hasta 186 días

Balance de Situación

PASIVOS

Obligaciones

- Hasta 30 días
- Más de 30 días

Otros pasivos

- Hasta 30 días
- Más de 30 días

16. Text Table 1 describes two hypothetical scenarios spanning extreme cases. To calculate the LCR from the available reports, we need to make assumptions on the maturity breakdown of certain assets and liabilities, on the credit rating distribution of securities, and on the sectoral composition of counterparties (sovereign, retail, nonfinancial and financial wholesale). Both scenarios assume that the maturity distribution of term deposits and loan receivables is uniform within the 6-month horizon of the official LLI. However, the optimistic (pessimistic) scenario envisages that all securities have the highest (lowest) possible credit rating and that all funding and inflows are the most (least) stable within their respective categories.

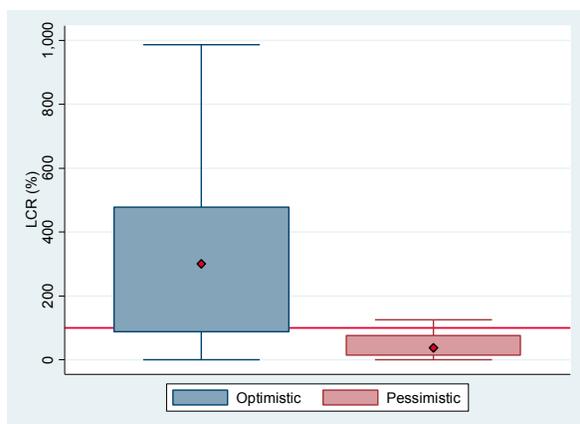
	Optimistic	Pessimistic
Maturity distribution	uniform (30/186 of total assumed below 30 days)	
Credit rating	100% prime/high	100% upper/lower medium
Nonbank deposits (outflow)	100% retail	100% wholesale
Loan receivables (inflow)	100% financial	100% nonfinancial

17. The range of possible LCR outcomes is wide, but even the most optimistic scenario has a number of banks failing the mark. Panel A of Chart 4 summarizes the distribution of bank-level LCRs in the two scenarios.⁹ The available data allows for very different conclusions about the short-term liquidity position of the banking system, ranging from almost no bank meeting the 100 percent LCR threshold to most banks passing the LCR test. This is a *prima facie* case for improving data reporting requirements in line with international standards. Furthermore, although the median bank has comfortable liquidity buffers in the optimistic scenario, about a quarter of banks would not be able to cover their cash outflows in a short-term liquidity shock scenario even under the most generous assumptions.

⁹ The dataset contains the liquidity reports and balance sheets reported by 46 onshore banks as of end-October 2015.

Chart 4. LCR Calculations Under Different Assumptions

Panel A: Extreme Scenarios



Panel B: Best approximation

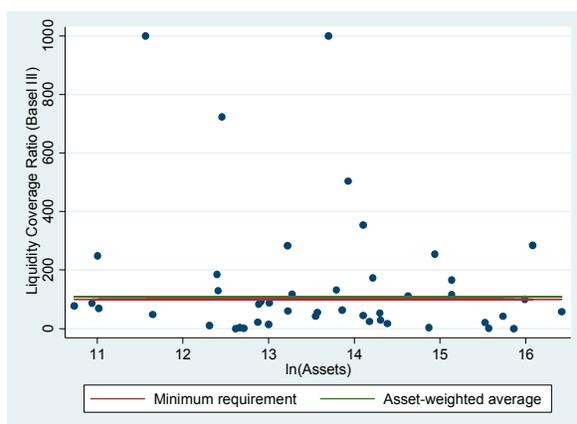


Source: Staff calculation based on SBP data. Note: Outliers are not shown on the chart to increase readability.

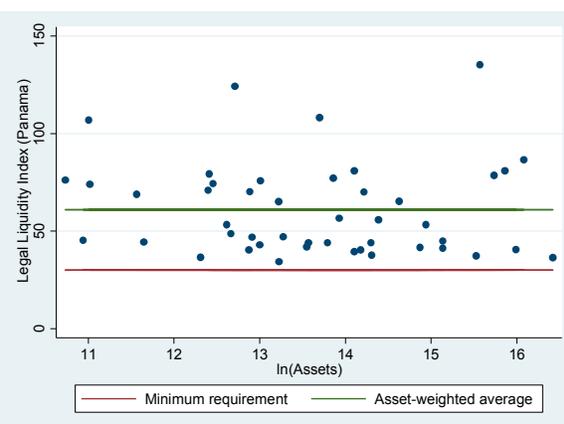
18. Our baseline estimates imply that a significant part of the banking sector does not meet the 100 percent LCR requirement. Unlike the uniform assumptions of the two extreme scenarios, the baseline estimates incorporate all bank-level information of the experts at the SBP. Under these assumptions, only 40 percent of banks could cover their net cash outflows through the use of HQLA, with the median bank having an LCR of 72.7 percent (Panel B of Chart 4). Chart 5 also shows that the banking system as a whole barely meets the LCR requirement with an asset-weighted average of 108.3 percent. Furthermore, most of the largest banks display below average short-term resilience to liquidity shocks according to the LCR. This is in stark contrast to the official LLI measure which suggests that some of the biggest banks are among the most liquid ones.

Chart 5. Liquidity Ratios and Bank Size

Panel A: LCR



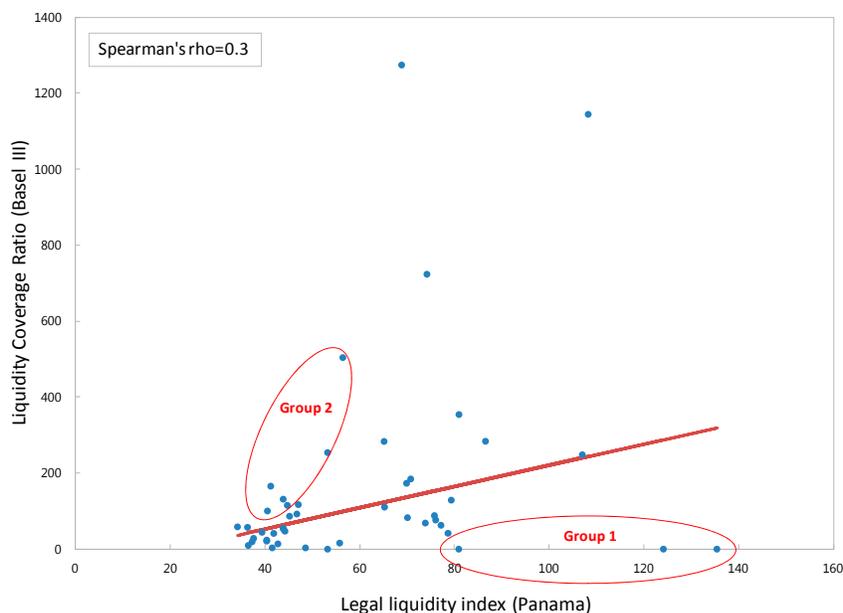
Panel B: LLI



Source: Staff calculation based on SBP data.

19. The LCR calculations show a very different ranking of bank liquidity buffers than the official measure. Chart 6 demonstrates that the LLI and LCR are quite disconnected across banks. The rank correlation is only 0.3, implying that the relative liquidity position of banks can be remarkably different under the two measures. In fact, some of the most liquid banks according to the LLI have a particularly low LCR (Group 1 in Chart 6), while some banks with low or medium official ranking show ample short term liquidity under Basel III standards (Group 2 in Chart 6).

Chart 6. Relationship between the LCR and the Official Liquidity Ratio



Source: Staff calculation based on SBP data.

20. An analysis of the outliers highlights the crucial differences between the current supervisory measure and the LCR. The banks in Group 1 (low LCR, but high official liquidity) tend to be foreign-owned with a large share of parent bank and wholesale funding, and little to no securities holdings. The local regulation completely excludes from the calculation all non-deposit wholesale funding, as well as deposits from affiliated banks. The LCR, on the other hand, considers these liabilities highly unstable under stress, leading to a significant wedge between the two measures. Similarly, the LCR strongly favors tradable securities over interbank placements, which penalizes banks that fulfill their official liquidity requirement with deposits at other banks. By contrast, Group 2 banks tend to hold highly-rated securities and rely more heavily on non-bank and retail funding, often with longer maturities. These characteristics boost their calculated liquidity relative to the LLI, because the LCR rewards more stable funding sources and high quality securities.

International outlook on liquidity regulation

21. The 100 percent LCR is a high standard for short-term liquidity buffers, and it will take effect fully only in 2019. Internationally, the LCR became effective on January 1, 2015, with a 60 percent minimum requirement growing by 10 percentage points each year until reaching 100

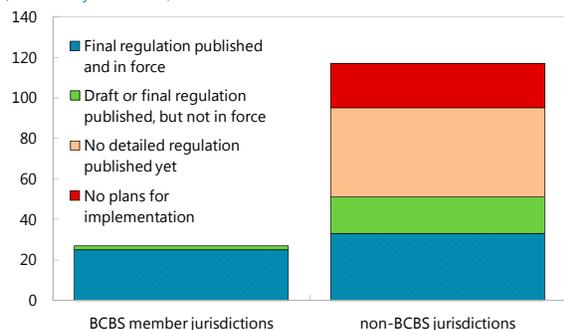
percent by January 1, 2019. The current threshold is 70 percent which is incidentally very close to the median of our baseline LCR estimates. Complying with the LCR requirement is a challenge for some banks, even in BCBS member jurisdictions, so it is not surprising that many Panamanian banks would need to substantially adjust their liquid asset portfolios and/or funding structures to comply with the standard.

22. However, regulators in many countries—especially with large banking sectors—have already made decisive steps towards the Basel III liquidity standards. Almost all of the BCBS member jurisdictions have fully implemented the LCR in their domestic supervisory framework (BCBS, 2015ab). According to data collected by the Financial Stability Institute (FSI, 2015), more than 40 percent of the 117 surveyed non-BCBS jurisdictions have also made significant progress by either fully implementing or by publishing a draft law of the LCR, and only 22 countries indicated that they have no plans for implementation. Panama is among the 44 non-BCBS countries that are planning to adopt the LCR standard, but have not published any official document about the proposed domestic regulations yet (Panel A of Chart 7). Closer inspection also reveals that most of the laggard jurisdictions have relatively small banking sectors. Panel B of Chart 7 sorts countries by their banking system assets/GDP ratio, and, in each tertile, displays the share of countries with significant progress in LCR implementation. The upper tertile, into which Panama falls, is dominated by jurisdictions that are in an advanced phase of implementation.

Chart 7. Adoption of the Basel III LCR as of November 2015

Panel A:

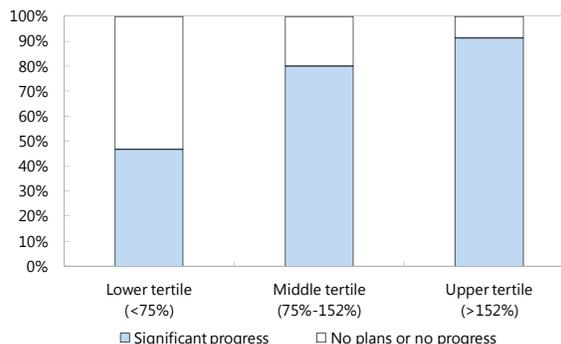
Status of LCR adoption
(number of jurisdictions)



Sources: Basel Committee, Financial Stability Institute, and IMF staff calculations

Panel B:

LCR adoption by banking system size
(Countries grouped by total bank assets as % of GDP)



Sources: Fitch Ratings, BCBS, FSI, and IMF staff calculations

Note: Panel A includes the 27 members of the BCBS and the 117 non-BCBS jurisdictions surveyed in FSI (2015). Panel B includes a subset of 94 jurisdictions for which banking system asset data is available. The minimum requirement for “significant progress” is the publication of a draft law.

D. Testing for Banks' Resilience to Loss of Foreign Funding

23. A conventional liquidity stress test supplements the LCR calculation to assess liquidity buffers under a scenario contemplating a substantial loss of foreign funding. This test assumes a stronger run-off of foreign-sourced funding compared to funding provided by local entities. The idea is to simulate the impact of a large-scale loss of correspondent banking relationships on the availability of funding from foreign banks and depositors.

24. Specifically, the liquidity stress test assumes that banks' access to foreign funding is severely curtailed, exceeding the stress assumed in the LCR calculation in some cases. First, the run-off of liquidity is assumed to continue beyond the 30-day horizon underlying the LCR calculation so that maturity mismatches in buckets of longer maturities are also factored in. Historical experience in emerging markets and during the Global Financial Crisis suggests that illiquidity can last for a protracted period, warranting analysis over longer horizons. Second, while the 100-percent run-off rate for foreign bank funding is identical to the LCR, the test imposes a severe 50 percent run-off rate for foreign retail deposits (LCR: up to 10 percent). On the other hand, a few parameters are relatively benign, reflecting the current favorable local conditions: all local retail funding is subject to a uniform 10 percent run-off rate (as under the LCR),¹⁰ while bonds issued by banks and local interbank funding are assigned a rate of 50 percent rather than 100 percent, and no run-off is assumed for funding from headquarters (applicable to foreign banks in Panama), as well as all other liabilities. This set of assumed run-off rates may actually lead to relatively benign stress test outcomes for some banks (for example those with ample funding from parent banks), although the results are not directly comparable to the LCR calculation. The individual run-off rates are summarized in Text Table 2.

25. Data limitations require a few simplifications in the liquidity stress test. Funding by residual maturity is available at the SBP only in three relatively wide maturity buckets: up to 6 months, between 6 and 12 months, and above 12 months, which does not allow for assessing funding and liquidity in more detail at shorter maturities. This also implies that no direct comparisons with the LCR calculations in Section C are possible. Furthermore, as mentioned above, the SBP does not provide a breakdown between retail and wholesale funding (the latter subject to a higher run-off rate in the LCR calculation) but rather only between bank and non-bank funding. As a result, in this liquidity stress test the funding from non-financial corporates is, by necessity, included in the retail category.¹¹

¹⁰ All retail deposits in Panama are considered unstable in the test owing to the lack of deposit insurance.

¹¹ The fact that a rate of 10 percent is applied to non-financial corporates rather than the standard 40 percent is arguably offset in part by the adverse assumption that all retail deposits are unstable (a uniform 10 percent rate rather than 5 percent for the fraction of the deposit base considered stable).

Table 2. Funding Run-off Rates by Type of Funding and Residual Maturity

Category:	Stress scenario - assumptions		
	Run-off rates		
	1	2	3
	Up to 6 months	6 to 12 months	Above 12 months
Foreign retail funding: sight deposits			
Unstable	50%	0%	0%
Foreign retail funding: savings deposits			
Unstable	50%	0%	0%
Foreign retail funding: term deposits	50%	50%	50%
Bank funding from parent bank	0%	0%	0%
Bank funding from foreign banks	100%	100%	100%
Bank funding from domestic banks	50%	50%	50%
Local retail funding (sight, savings and term deposits)	10%	10%	10%
Bank bonds	50%	50%	50%
Other liabilities	0%	0%	0%

Source: staff calculations

26. The overall run-off of funding resulting from the assumed rates is arguably severe but broadly in line with international experience during crises. The average overall run-off amounts to one-third of total liabilities (33.6 percent; rates ranging between 6.9 and 64.2 percent). A rule of thumb gained from previous crisis episodes around the globe for calibrating the overall funding outflow suggests that 20 percent of funding may be lost within 3 months and 30 percent within 6 months.

27. Next, the projected outflows are compared to different layers of available liquidity in each maturity bucket. The liquidity stress test takes a gross perspective. That is, a certain outflow in a given bucket must be met by the available liquidity buffer in the same bucket; an offset of a liquidity shortfall by excess liquidity at a longer horizon is not permissible. This may lead to the seemingly paradoxical outcome that a bank is “long” in liquidity overall but still registers a liquidity gap in one of the buckets. In the event, shortfalls appear only in the two shorter buckets of maturities of up to 6 months and between 6 and 12 months.

28. The stress test stipulates three layers of liquidity that banks can resort to in meeting a funding outflow. The order of accessing liquidity buffers is the following:

- Banks are assumed to first use inflows from maturing investment and lending operations, i.e. securities and loans coming due. The rate of usable inflows (“roll-off” rate) for shorter-term securities maturing within 6 months is set to be 100 percent—corresponding to full repayment of the securities at maturity—while that for maturing loans to the non-financial sector is 50 percent, which is broadly in line with the LCR framework;
- If, after using up the first buffer, a shortfall in a certain maturity bucket remains, banks can still resort to the second layer of liquidity which consists of the stocks of cash and of interbank loans carrying a 100 percent roll-off rate as in the LCR;¹²
- In the relatively rare event that even the additional buffer of cash and cash-like instruments does not suffice, banks are finally forced to sell securities with longer residual maturities (of over 6 months), representing the third layer. As in a systemic event many banks may be forced to sell at the same time, a fire-sale haircut of 20 percent to the recorded value of the security is applied.¹³

Any remaining shortfall after sale of securities means that a bank is out of options and in the absence of a lender of last resort in Panama must be considered terminally illiquid.

29. Applying the framework to 46 general license banks¹⁴ shows that funding outflows can generally be met using the first and second layers. While most banks show considerable shortfalls in the shorter maturity buckets after utilizing inflows from operations—the first line of defense—the gaps generally disappear when accessing the stock of cash and maturing interbank loans. Only in less than one-third of cases (14 out of 46 general license banks with a share of 30 percent of system assets) does a shortfall persist after using the second layer, and the number of banks with a terminal shortfall after exhausting the third layer is only four (accounting for 18 percent of system assets). Still, the finding that a number of banks would have to resort to selling less liquid instruments and a few even be left with a final liquidity gap can be construed as a certain susceptibility to withdrawals of foreign funding under the assumed rather severe conditions. This is also true of international license banks, for which the analysis of liquidity shortfalls was calculated separately (see Appendix I).

¹² This is arguably a somewhat optimistic assumption as some counterparty banks may become illiquid following the curtailment of correspondent bank relationships. However, this type of interbank contagion analysis that was conducted for the previous Article IV mission (Cerdeiro et al., 2015) was deemed beyond the scope of the exercise, and therefore full repayment was assumed.

¹³ The choice of this haircut rate was also informed by discussions with representatives of the securities exchange of Panama.

¹⁴ All bank data as of end-December 2015.

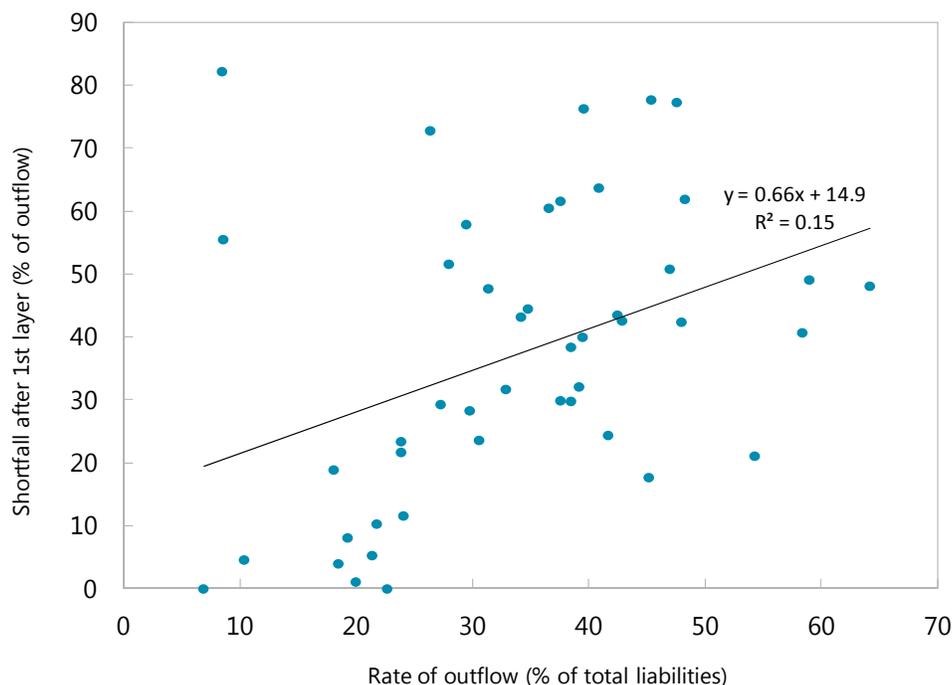
Table 3. Summary Results of Conventional Liquidity Stress Test—General License Banks
(In percent)

	Average (mean)	Maximum	Upper quartile	Lower quartile
Funding outflow in percent of total liabilities	33.6	64.2	42.3	23.9
Liquidity gap in percent of outflows after using 1 st layer	37.1	82.2	51.4	21.3
Liquidity gap in percent of outflows after using 2 nd layer	5.5	39.5	3.3	0.0
Final liquidity gap in percent of outflows after using 3 rd layer	0.9	16.8	0.0	0.0

Source: Superintendency of Banks (SBP), staff calculations

30. There is a reasonably tight relationship between the degree of funding outflows and the liquidity shortfall after using the first layer of liquidity. As Chart 8 shows, most general license banks projected to experience severe funding outflows also exhibit sizable liquidity gaps after having used the first buffer (inflows from maturing operations). However, there are a few exceptions: banks above the regression line and particularly those toward the upper left hand corner have relatively large gaps despite not being exposed to high funding outflows. Conversely, banks below the regression line dispose of a large initial buffer that dampens the impact of, in part, substantial funding shocks.

Chart 8. Relationship Between Funding Outflow and Liquidity from Operations
(In percent)



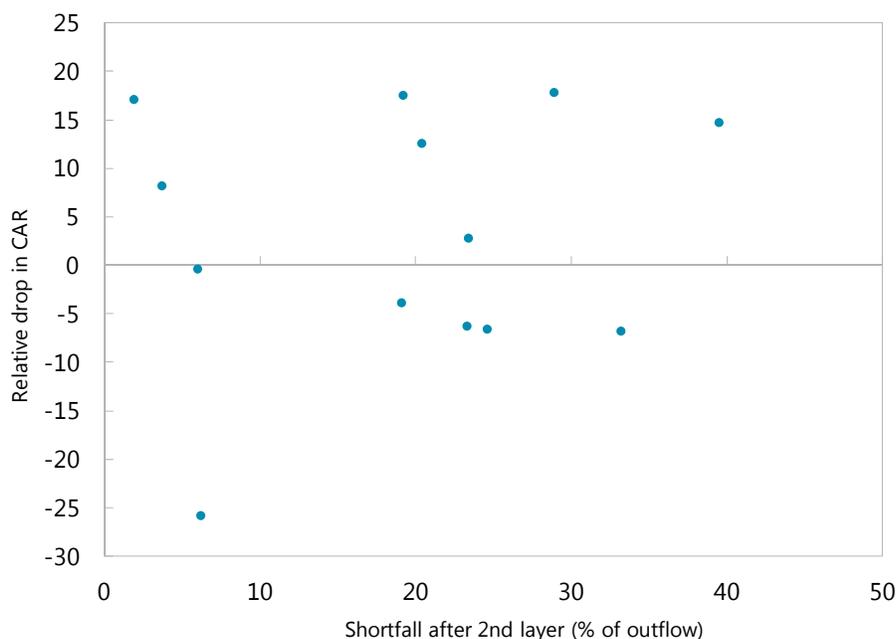
Source: SBP, staff calculations

31. Reassuringly, most banks displaying sizable liquidity shortfalls have robust solvency positions.¹⁵ In Chart 9, the banks with a liquidity shortfall after using the 2nd layer are plotted against their relative drop in the capital adequacy ratio (CAR)¹⁶ in the severe stress scenario of a solvency stress test conducted by the SBP as of end-December 2015. In fact, there is no evident link between illiquidity and insolvency: Most of the relatively illiquid banks turn out to have robust solvency positions, reflected in below average declines in the CAR under severe stress. Put differently, all banks but one failing the solvency test perform reasonably well in the liquidity stress test, with none having a liquidity shortfall after using the second layer.

¹⁵ The SBP regularly conducts solvency stress tests for general license banks.

¹⁶ The relative drop in the capital adequacy ratio is computed as the difference to the percentage drop in the CAR at the system level, which in the solvency stress test turned out to be 16.85 percent or about one-sixth of the initial CAR. For example, a bank with a drop in CAR of 20.72 percent is shown as having a relative drop in CAR of -3.87 percent (16.85 percent minus 20.72 percent). This relative measure (as opposed to the change expressed in percentage points) was taken to account for different starting levels of capitalization across banks.

Chart 9. Relationship Between Liquidity and Solvency Under Stress
(In percent)



Source: SBP, staff calculations

32. This finding implies that the risk of a simultaneous deterioration in both the liquidity and solvency position appears muted, but risks still prevail. Banks showing non-negligible liquidity gaps do not exhibit solvency issues. Still, liquidity problems in the aftermath of a severe loss of correspondent banks and, hence, foreign-sourced funding may spill over to solvency in the medium run, as funding costs may rise and fee income fall. Conversely, perceived lack of solvency may precipitate funding outflows and loss of correspondent banks.

E. Concluding Remarks

33. The analysis of liquidity positions performed in this paper points to some vulnerabilities. A number of banks would not meet the LCR requirement for short-term liquidity at this point, owing to the over-reliance on interbank placements and scheduled inflows instead of high-quality tradable securities. Similarly, some banks do not perform well under a conventional stress test assuming a substantial outflow of foreign funding, having to sell less liquid instruments in order to close a liquidity gap that remains after using readily-available liquidity.

34. The current favorable conditions would promote the accumulation of even stronger balance sheet buffers and the strengthening of the regulatory framework. In light of the steady global progress in the adoption of Basel III liquidity norms, stepping up on-going efforts to update the Panamanian liquidity regulation and corresponding data collection is a worthwhile policy option. Adopting the LCR (and the Net Stable Funding Ratio (NSFR) at a later stage) would improve the banking sector's ability to absorb large and unexpected shocks arising from financial and economic stress, thus reducing the risk of spillovers from the financial sector to the real economy.

References

Basel Committee on Banking Supervision (2013), "Basel III: The Liquidity Coverage Ratio and liquidity risk monitoring tools", January 2013

Basel Committee on Banking Supervision (2015a), "Ninth progress report on adoption of the Basel regulatory framework", October 2015

Basel Committee on Banking Supervision (2015b), "Implementation of Basel standards: A report to G20 Leaders on implementation of the Basel III regulatory reforms", November 2015

Cerdeiro, D., M. Hadzi-Vaskov and T. Wezel (2015), "Assessing Risks in the Panamanian Banking Sector: Stress Testing and Contagion Analysis", in: "Panama—Selected Issues", IMF Country Report 15/238, pp. 3-32.

Financial Stability Institute (2015), "FSI Survey: Basel II, 2.5 and III Implementation", July 2015

Appendix I. Results of Conventional Liquidity Stress Test for Banks with International License

The conventional liquidity stress test was performed also for banks with international license.

These banks, sometimes referred to as “offshore” banks, differ from the general license banks in that they are prohibited from engaging in transactions with domestic clients. This restriction implies, for example, that these banks do not have a domestic retail funding base, which in itself causes a higher overall funding run-off rate in comparison to general license banks.

Several international license banks do not pass the stress test owing to their particular liquidity and investment structures. Five out of 26 international license banks accounting for about 40 percent of assets of this segment—a higher share than among the general license banks—show a shortfall after resorting sequentially to all three liquidity buffers. While the funding outflows as such are not overly severe (around 50 percent of liabilities) despite the lack of retail funding, the asset side does not produce much in the way of operational inflows from loans or short-term securities nor does it provide for sufficient cash, interbank deposits or securities in these cases. Generally, though, almost three-fourths of international license banks are able to cover their funding shortfalls through cash and cash-like positions. This finding goes to show that most “offshore” banks are wary of the risk of having to rely exclusively on funding from the exterior due to their license and keep adequate liquidity buffers. Still, the banks showing a final liquidity gap in the test do so with quite a margin so that in order to pass they would need to adjust the composition of their asset portfolios, including maintaining a larger share of instruments with short-term maturities.

Text Table I. Summary Results of Conventional Liquidity Stress Test—International License Banks
(in percent)

	Average (mean)	Maximum	Upper quartile	Lower quartile
Funding outflow in percent of total liabilities	40.9	60.7	49.5	46.9
Liquidity gap in percent of outflows after using 1 st layer	60.7	100.0	77.7	51.4
Liquidity gap in percent of outflows after using 2 nd layer	10.6	60.5	17.7	0.0
Final liquidity gap in percent of outflows after using 3 rd layer	5.0	39.7	0.0	0.0

Source: Superintendency of Banks (SBP), staff calculations

ECONOMIC EFFECTS OF PANAMA'S OFFSHORE BANKING SECTOR¹

Offshore banking is an important segment that accounts for a sizable portion of Panama's international banking center (CBI). As offshore financial centers (OFC) have come under heightened scrutiny due to international initiatives to strengthen financial integrity, improve transparency and fight tax evasion, this analysis looks at the contribution of Panama's offshore banking sector (OBS) to the local economy. It identifies three main, quantifiable channels through which offshore banking affects Panama's economy: employment generation, local expenditure, and public revenues. In particular, OBS accounts for about 3.5 percent of total employment in the banking sector, 0.1 percent of overall local expenditure, and roughly 0.1 percent of public revenues. While these contributions are not insignificant for the local economy, they are relatively less important compared to the impact of the OFCs in the Caribbean island economies.

A. Introduction

1. The offshore banking sector is an important segment of Panama's international banking center. As of December 2015, Panama's CBI consists of 92 banks, 51 of which have general banking license (including the two state-owned banks *Banco Nacional de Panamá* and *Caja de Ahorros*), 27 have international license, and 14 are representative offices of foreign banks. The general-license banks, also referred to as the national banking system (NBS) or the "onshore" sector, can conduct all types of banking operations in Panama and abroad. The international-license banks, also referred to as the "offshore" sector, are not allowed to conduct domestic banking operations and can only collect deposits from non-residents and allocate credits abroad. The resident representative offices are only allowed to promote the business activities of their foreign-owned parent banks, but cannot have any banking operations.

2. Recent initiatives to strengthen financial integrity, improve transparency, and fight tax evasion have raised the operating costs of many financial centers. Heightened scrutiny by international and national policy regulators and multilateral initiatives (G-20, FATF, Global Forum on Tax Transparency, FSB, and others) have raised the costs of complying with the international standards. In this context, the authorities in countries with significant offshore financial sectors have been urgently requested to strengthen their supervisory and regulatory frameworks and to intensify their efforts aimed at ensuring adherence to information-sharing standards.

3. In light of arguments that the costs of having an offshore financial sector may have increased recently, this analysis aims to assess the contribution of Panama's OBS to the local economy. It takes stock of studies in the literature that aim to assess the economic impact of offshore financial centers, and gives an overview of the place and recent developments in Panama's OBS. In turn, the analysis documents three major direct channels through which offshore banks

¹ Prepared by Metodij Hadzi-Vaskov (WHD).

contribute to Panama's economy (employment generation, local expenditure, and public revenues) and provides some concluding remarks, putting this evidence in a cross-country context.

B. Literature Review

4. The literature suggests that economic contributions of OFCs vary widely across jurisdictions. The empirical studies focus on government revenues derived from taxes, license fees, and renewal charges for licensed entities, direct employment generation, and benefits through positive spillovers to other sectors of the local economy, including tourism and infrastructure upgrades. For instance, in their study of the English-speaking Caribbean islands, Suss, Williams, and Mendis (2002) find that direct fiscal revenues related to OFCs in year 2000 range from 0.2 percent of GDP or less than 1 percent of government revenue in The Bahamas to 13.1 percent of GDP or almost 55 percent of government revenue in the British Virgin Islands. The fiscal effect is reported to be around 1 percent of GDP in most other English-speaking Caribbean islands, with the exception of the Cayman Islands, where the OFC contributes over 4 percent of GDP in public revenues or about 15 percent of government income. Gonzáles-Mendoza et al. (2013) find that direct fiscal revenues from OFCs in 2008 accounted for a small fraction of total government revenues in The Bahamas (0.05 percent) and Antigua and Barbuda (0.2 percent), though they constitute a larger fraction in St. Kitts and Nevis (2.1 percent) and especially in Barbados, where the OFC contributes about 11 percent of total public revenue.

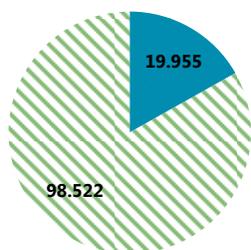
5. Offshore centers are documented to have contributed considerably to economic activity and employment in the Caribbean. Suss, Williams, and Mendis (2002) estimate that the OFC in The Bahamas contributed 2.5 percent of GDP in local expenditure, and directly employed almost 1,000 workers at the end of 2000. Using estimates based on revenue flows, employment, and services, Gonzáles-Mendoza et al. (2013) find that the OFCs contributed about 1 percent of domestic GDP in Antigua and Barbuda, 7.8 percent in Barbados, and 7.4-9.2 percent of GDP in The Bahamas. Britton and Sacks (2007) report that offshore banking in The Bahamas directly accounts for about 3.5 percent of GDP (almost 40 percent of banking sector's total value added) and about 1,000 jobs or over a quarter of total banking sector employment. Moreover, they find that value added per employee in the OFC has been nearly twice as large as in the onshore part of the banking sector. In a related vein, using data for 15 Caribbean island economies, Butkiewicz and Gordon (2013) find that the presence of an OFC had a sizable and positive effect on national income growth.

C. Offshore Banking Sector in Panama

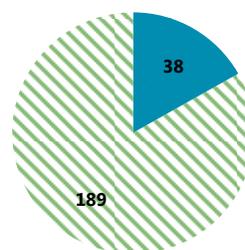
6. Offshore banks account for a sizable portion of the banking center. The total assets of Panama's banking center at end-December 2015 amount to \$118.5 billion, or about 227 percent of GDP, out of which close to \$100 billion, or about 190 percent of GDP correspond to the general-license banks with full onshore banking operations. The offshore segment constitutes roughly one fifth of the banking center, with assets amounting to about \$20 billion, or about 38 percent of GDP.

Chart 1. International Banking Center Assets

Total assets (\$ billions)



Total assets (% of GDP)



■ Offshore banking sector ■ National banking system ■ Offshore banking sector ■ National banking system

Source: SBP and Fund staff calculations.

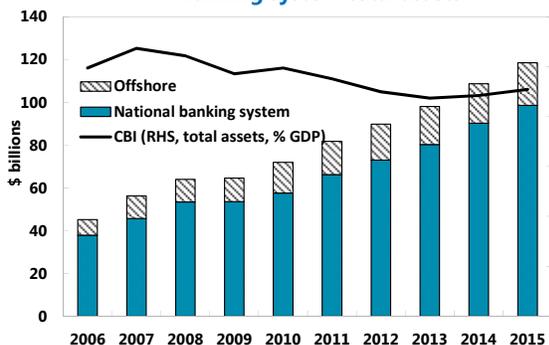
Source: SBP and Fund staff calculations.

7. The offshore segment has evolved broadly in line with the rest of the banking sector.

The banking center has grown at roughly the same rate as Panama’s GDP over the last decade, with total assets oscillating around 2.5 times the size of the economy. The global financial crisis had a small impact limited to a short stagnation episode in 2009, and the banking center has doubled in size since 2008. Offshore banks’ assets followed a broadly similar trend with the CBI, though their share in GDP registered a slight decline from close to 50 percent of GDP in 2010 to about 40 percent of GDP in the last year.

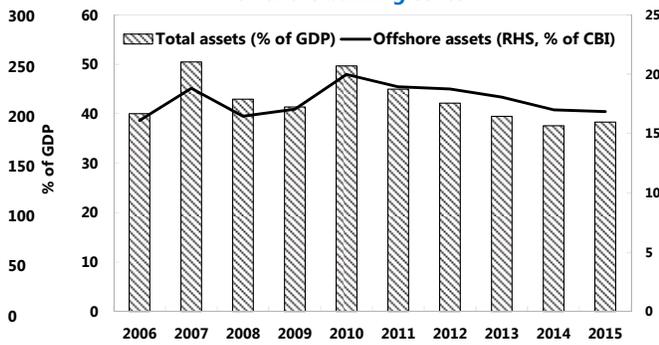
Chart 2. Banking Center Developments

Banking system total assets



Source: SBP and Fund staff calculations.

Offshore banking center

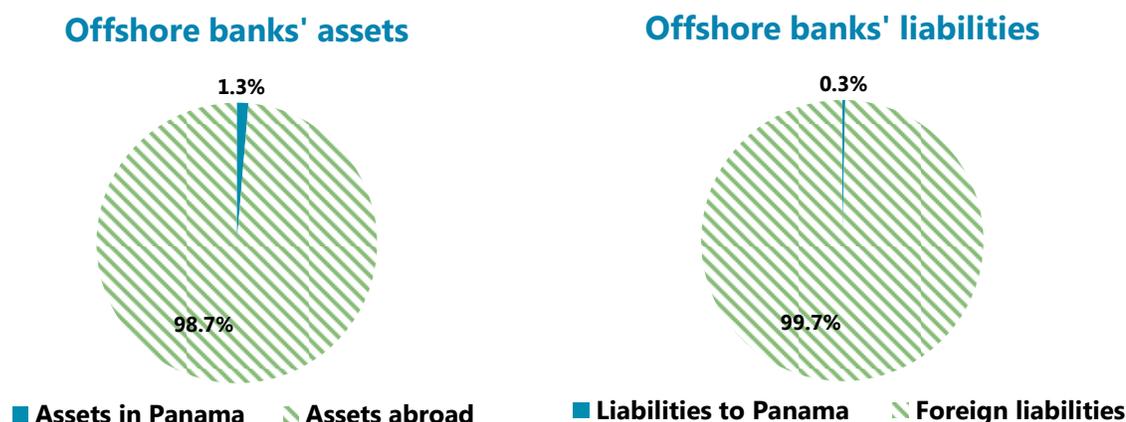


Source: SBP and Fund staff calculations.

8. Linkages of offshore banks with the rest of Panama’s financial system are very limited.

While offshore banks can conduct interbank transactions with the onshore banks, the scope of such transactions is very limited. In fact, only 1.3 percent of offshore banks’ assets are held in Panama, most of them in the form of deposits at local banks. At the same time, domestic liabilities represent only about 0.3 percent of offshore banks’ total liabilities.

Chart 3. Offshore Banks' Assets and Liabilities



Source: SBP and Fund staff calculations.

Source: SBP and Fund staff calculations.

9. Offshore banks are monitored by both home and host supervisors. Formal regulation and supervision in their home countries is a pre-condition for banks to obtain international bank license in Panama. Home supervisors are also conducting regular on-site inspections of the offshore banks in Panama. In addition, the Superintendency of Banks of Panama (SBP) as their host supervisor, monitors the offshore banks' operations on a regular basis, and carries out on-site inspections at least once every 18 months.

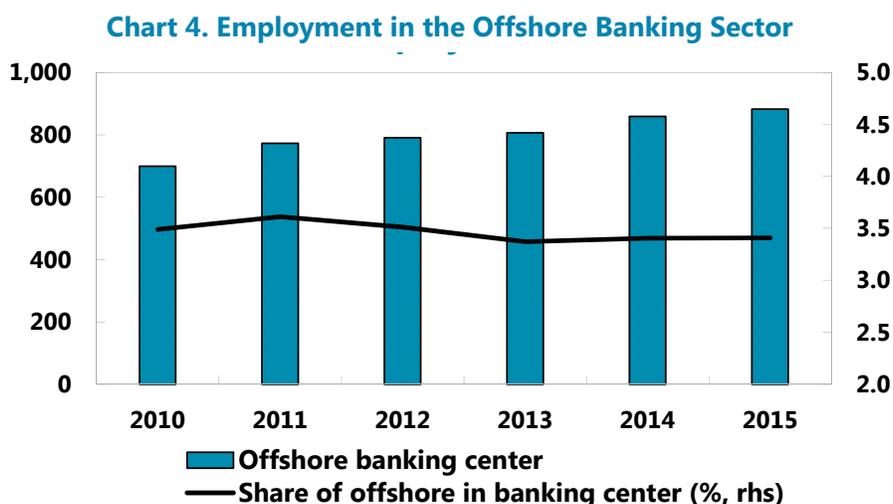
10. Offshore banks enjoy favorable tax conditions. International-license banks are exempted from profit taxes in Panama, as they do not conduct any domestic banking operations, which represents an important incentive for basing their international banking activities in the country. They are, nonetheless, subject to business license, municipal, property, complementary, banking, and fixed annual taxes.

D. Effects on the Real Economy

11. The offshore banking sector affects the real economy through various channels. These banks contribute to generation of jobs in the domestic economy. In addition, improved training of the local workforce to match the requirements of the international-license banks can lead to higher human capital. The offshore banks' presence affects the demand for housing and accommodation, as well as the real estate market², may help support the diffusion of modern technology and knowhow, and can even facilitate FDI inflows in the local economy. While some of these channels are difficult to quantify, the focus here is on three direct quantifiable effects: employment, local expenditure, and government revenues.

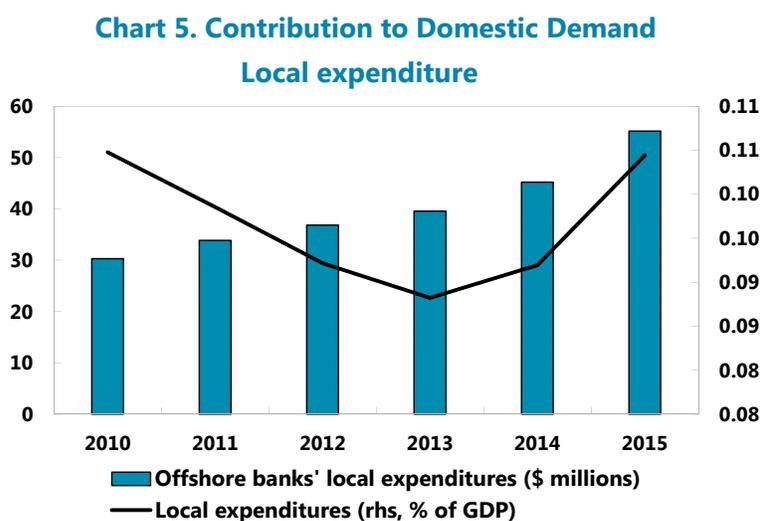
² The scarcity of real estate market data and the lack of real estate price index prevent an analysis about the impact of OBS on properties in Panama.

12. OBS accounts for a stable share of total banking center employment. Over recent years, offshore banks have directly accounted for 800-900 jobs in the Panamanian economy (Chart 4). However, the offshore banking segment has been significantly less labor-intensive compared to the onshore part, given its orientation to international operations. While the offshore banks account for a fifth of the CBI assets, they only employ about 3.5 percent of CBI’s workforce.



Source: SBP and Fund staff calculations.

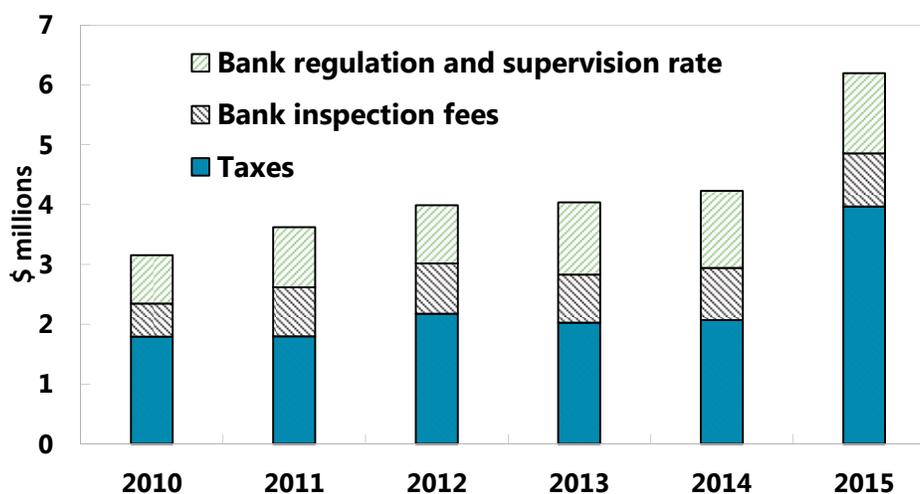
13. Offshore banks directly contribute to domestic demand through administrative and general expenditures. In total, OBS accounted for about \$55 million in local expenditure in 2015, or roughly 0.1 percent of GDP (Chart 5). While the nominal value of wages, administrative, and general expenses has almost doubled from 2010 to 2015, its share remained around 0.1 percent of the domestic economy.



Source: SBP and Fund staff calculations.

14. OBS contributed to public revenues through taxes, bank inspection fees, and bank regulation and supervision rates. While offshore banks are exempted from profit taxes, they pay municipal, business license, property, banking, complementary, and fixed rate taxes, which typically represent over half of all public revenues collected from OBS. The remaining revenues refer to bank inspection fees and regulation and supervision rates that offshore banks pay directly to the SBP. Overall, these payments amounted to about \$6 million in 2015, or roughly 0.1 percent of total government revenues (Chart 6).

Chart 6. Collection of Public Revenues



Source: SBP and Fund staff calculations.

E. Concluding Remarks

15. Offshore banking accounts for a sizable portion of Panama's banking center. While direct financial linkages to the rest of the financial system are very limited, the offshore banking segment contributes to the local economy through employment, expenditures, and public revenues. Namely, this sector accounted for about 3.5 percent of total employment in the banking center, 0.1 percent of overall local expenditure, and roughly 0.1 percent of public revenues in 2015. Nonetheless, the economic contribution of Panama's OBS is relatively less important compared to the impact of the offshore financial centers in the smaller Caribbean island economies, where the offshore banking segment accounts for up to a tenth of the local economy and even close to half of all public revenues. In this context, it is important to mention two notes of caution. The analysis here is limited to offshore banking and does not cover the rest of the offshore financial services industry, which may have a more significant overall impact on Panama's economy³. Finally, the analysis does not incorporate the indirect effects related to spillovers from offshore banking to FDI inflows, tourism, and infrastructure investments, among others.

³ The rest of the offshore sector includes providers of legal and various ancillary services.

References

Britton, E. and A. Sacks (2007), "The Economic Value of the Financial Services Industry in The Bahamas", Oxford Economics.

Butkiewicz and Gordon (2013), "The Economic Growth Effect of Offshore Banking in Host Territories: Evidence from the Caribbean", *World Development* 44, 165-179.

González-Miranda, M., U. Khosa, Ph. Liu, A. Schipke, and N. Thacker (2013), "Offshore Financial Centers: To Be or Not to Be?", in *Eastern Caribbean Economic and Currency Union – Macroeconomics and Financial Systems*, ed. by A. Schipke, A. Cebotari, and N. Thacker, IMF, Washington, DC.

IMF (2012), *Panama: Financial System Stability Assessment*, Washington, DC.

Suss, E., O. Williams, and C. Mendis (2002), "Caribbean Offshore Financial Centers: Past, Present, and Possibilities for the Future", IMF Working Paper 02/88, Washington, DC.

INCLUSIVE GROWTH IN PANAMA¹

A. Executive Summary

1. **Panama's exceptional growth performance has contributed to significant reduction in poverty, and a decline in income inequality.** While economic growth has been biased toward the poorer segments of the population, certain parts of the population, particularly the indigenous groups, saw relatively smaller declines in poverty and continue to face substantially higher poverty rates. In addition, the indigenous persons that live in the semi-autonomous *comarcas* face significantly higher poverty incidence than indigenous persons that reside outside the *comarcas*.
2. **Education spending and student performance scores have been lagging behind regional peers.** Education indicators, such as school enrollment and school desertion rates, seem to be strongly associated with differences in poverty rates across regions.
3. **Addressing challenges related to the indigenous groups and the education sector is an important venue for achieving more inclusive growth.** In this context, actions that improve education outcomes, particularly those focused on the specific needs of the indigenous population, seem to have a high potential to strengthen overall inclusiveness.

B. Introduction

4. **The importance of inclusive growth can be emphasized along several dimensions.** First, there is a moral dimension, as a process that allows larger share of the population to contribute to and to benefit from economic growth can be considered fairer. Second, there is a socio-political dimension, as more equal sharing of benefits from economic growth may be associated with higher social stability. Third, there is economic rationale as lower income inequality and more sustainable growth may be considered as two sides of the same coin over longer horizons (Berg and Ostry, 2011). Finally, in Panama's context, achieving a more inclusive country is a key objective of the Government's Strategic Plan 2015–2019.
5. **While inclusiveness is a multidimensional concept, the emphasis in this study is placed on documenting two aspects of inclusive growth in Panama: poverty and education prospects.** Doing so, particular attention is paid to the indigenous population, which faces substantial challenges toward achieving higher inclusiveness. The analysis presents some facts about Panama's growth performance, poverty, inequality, shared prosperity, and education outcomes. In turn, it presents differences between indigenous regions and the rest of the country and provides some insights on venues for improving inclusiveness in the future.

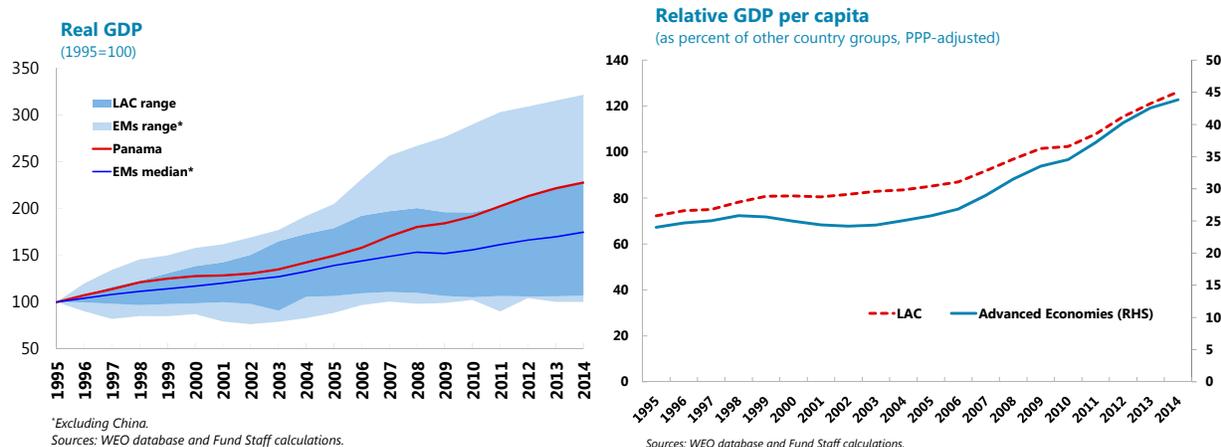
¹ Prepared by Metodij Hadzi-Vaskov (WHD).

C. Context and Developments

6. Panama had the highest growth in LAC over the last two decades. Supported by robust public investment in recent years, including the expansion of the Canal, economic growth was significantly higher than the median for emerging markets and among the highest in the world (Chart 1). In addition, the impact from the economic and financial crisis of 2008-2009 seems to have been limited as the economy grew faster in the post-crisis compared to the pre-crisis period.

7. Convergence of income per capita has been exceptional. While GDP per capita (in PPP-adjusted terms) in Panama was less than a quarter of the level in advanced economies two decades ago, it reached almost half of the level in advanced economies in 2015. Panama's convergence to the income level of the U.S. was exceptional, as income per capita increased from less than 20 percent two decades ago to about 40 percent now. Similarly, it went from about 70 percent in 1995 to over 130 percent of the income level in LAC in 2015.

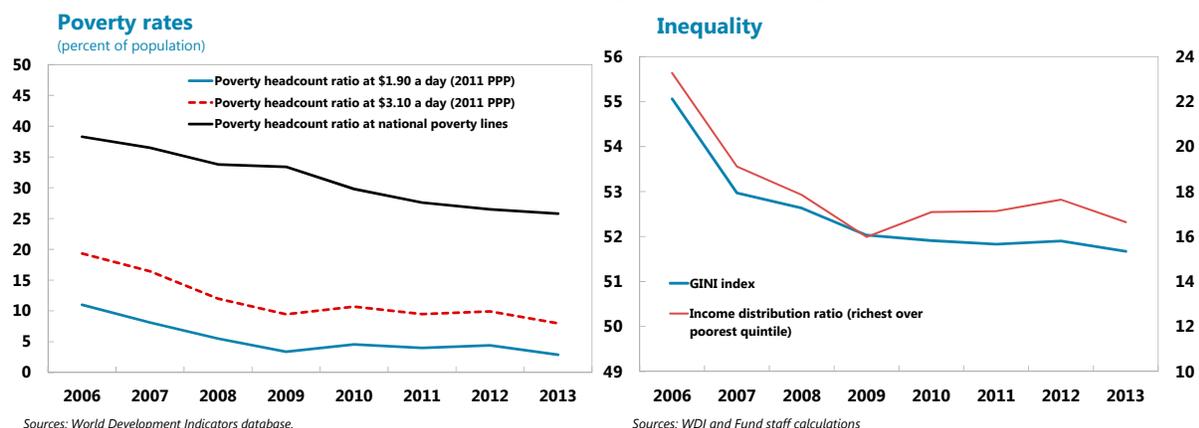
Chart 1. Panama's Growth Performance



8. Strong growth performance contributed to a significant reduction in poverty. Vibrant economic activity and the execution of important investment projects were reflected in steady job creation and increase of household incomes. Overall poverty, measured according to the national definition, dropped by a third over the last decade. Similarly, internationally-comparable definitions, such as those used in the World Development Indicators, suggest a significant decline in poverty headcount (Chart 2).

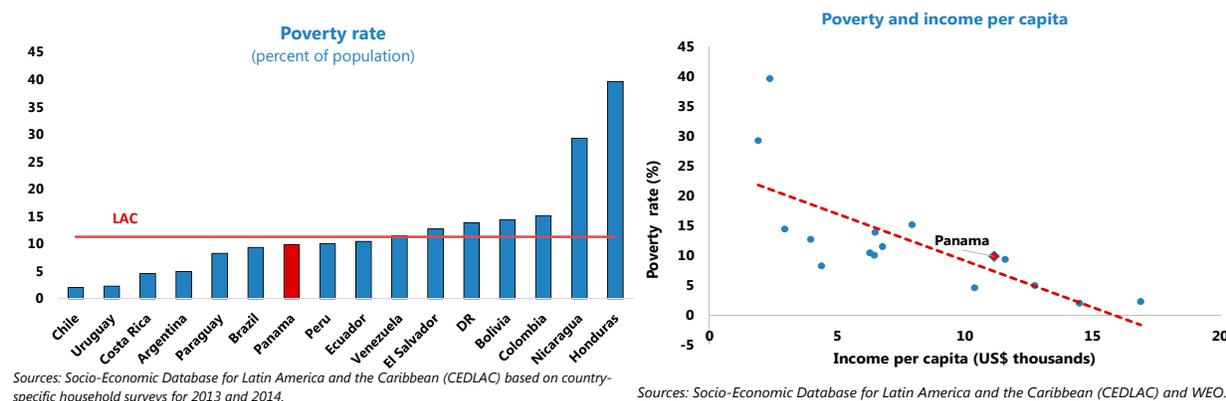
9. Income inequality decreased somewhat. Measured through the Gini coefficient, income inequality declined somewhat over the last decade, though it still remains elevated. At the same time, the income distribution ratio that compares the richest quintile to the poorest quintile of the income distribution indicates a comparable reduction in inequality. Nonetheless, income of the richest quintile still remains about 15 times higher than income received by the poorest quintile, which is among the highest differences in a regional context.

Chart 2. Poverty and Inequality



10. Poverty rate in Panama is slightly below the average in LAC. A comparison based on consistent cross-country definitions indicate that the poverty rate is slightly below the average for LAC. Nonetheless, this finding partly reflects the fact that Panama’s income is relatively high compared to the region. In particular, when one accounts for the countries’ income per capita levels, the poverty rate in Panama is somewhat above trend for countries in the LAC region with similar levels of income per capita.²

Chart 3. Poverty in LAC

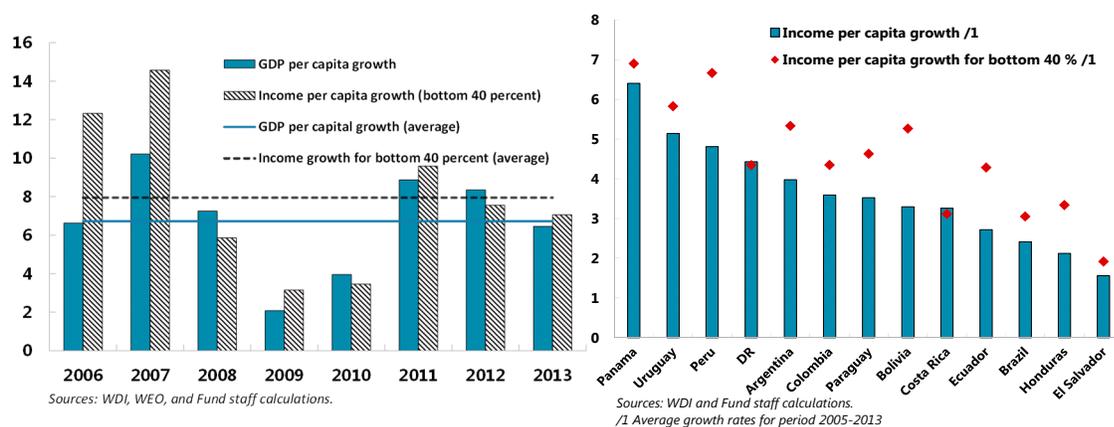


11. Beyond reduction in poverty and inequality, Panama achieved progress in terms of shared prosperity. On average, real income per capita increased by close to 7 percent over the last decade. At the same time, real per capita income of the bottom 40 percent of the income distribution increased even more, by about 8 percent annually. These findings suggest that growth

² Similar result is obtained when countries are compared on the basis of their income per capita in PPP-adjusted terms.

has not only been very robust, but it has been biased toward the poorer segments of the population. While average per capita income growth for the bottom 40 percent in Panama has been the highest among the countries in LAC over the last decade, this mainly reflects Panama’s outstanding overall growth performance. In fact, growth in countries such as Bolivia, Peru, and Ecuador has been significantly more biased toward the poorer segments, with average income per capita for the bottom 40 percent growing by 1.5–2 percentage points faster than overall income per capita.

Chart 4. Shared Prosperity in Panama and LAC



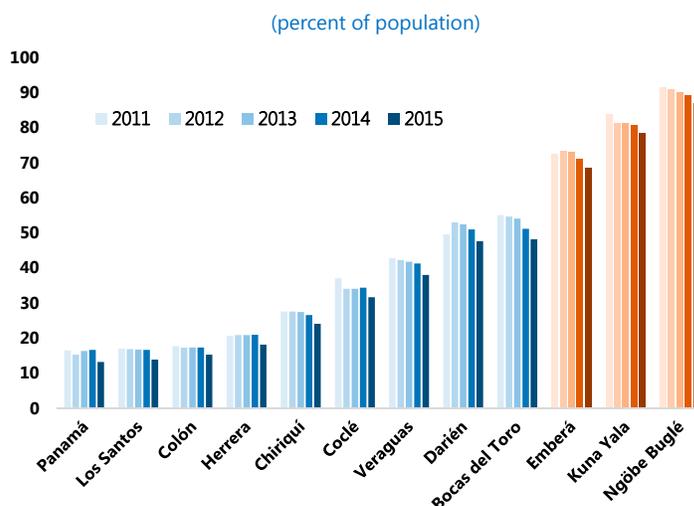
D. Indigenous Groups

12. Panama is home to significant indigenous population. There are eight separate indigenous groups that account for about one tenth of Panama’s population. Close to half of the indigenous population lives in the semi-autonomous self-governing *comarcas*, three of which have the status of provinces³. These *comarcas* comprise close to one quarter of the country’s territory and are governed by indigenous congresses and councils.

13. Poverty significantly declined in recent years, but stark differences in poverty rates persist across regions in Panama. The drop in the national-wide poverty rate to 23 percent in 2015 (from about 28 percent in 2011) reflects poverty reduction across all provinces and *comarcas*. Nonetheless, poverty in the 10 provinces dropped to about 19 percent of the population, while poverty in the three semi-autonomous *comarcas* settled at a significantly higher level of about 85 percent of the population in 2015.

³ Panama is organized into 10 provinces and 3 provincial-level *comarcas*. The three *comarcas* with province status are Emberá, Kuna Yala, and Ngäbe-Buglé, while two *comarcas* Madugandi and Wargandi are considered equivalent to municipalities.

Chart 5. Regional Differences in Poverty within Panama

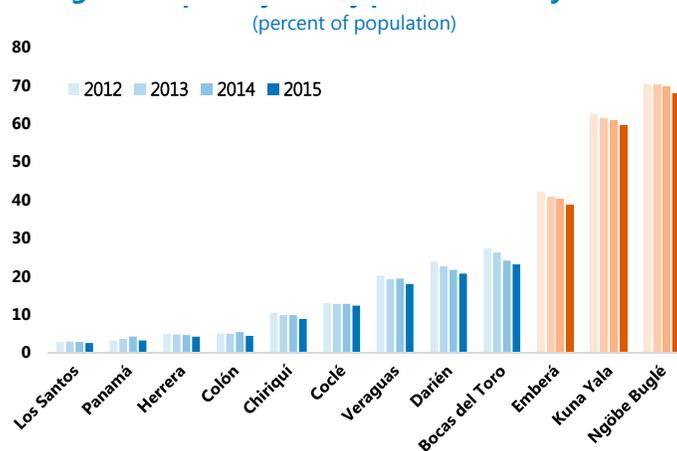


Sources: Ministry of Economy and Finance (MEF) and National Institute of Statistics and Census (INEC)

14. Reduction in extreme poverty was less pronounced compared to overall poverty.

According to the national definition, a lower share of the population lived in extreme poverty in 2015 compared to 2011 in all regions with the exception of Panama province, where it remained unchanged at 3.2 percent. Similar to the overall poverty findings, substantial differences persist between provinces and *comarcas*. While extreme poverty affects about 10 percent of the population in the provinces, about two thirds of the population in the three *comarcas* lives in extreme poverty. The contrast is particularly striking between the Ngöbe Buglé *comarca*, where about two thirds of the residents live in extreme poverty, and the provinces Los Santos and Panama, where extreme poverty affects 2.5 percent and 3.2 percent of the population, respectively.

Chart 6. Regional Differences in Extreme Poverty within Panama



Sources: Ministry of Economy and Finance (MEF) and National Institute of Statistics and Census (INEC)

15. Changes in poverty across provinces and comarcas varied widely. Considering the monetary income as a starting point, poverty rates declined on average by about 4.5 percentage points for both provinces and *comarcas* over the last five years, which represents a much larger

reduction in poverty for the provinces as they have substantially lower poverty rates than the *comarcas*. For instance, the decline of 4.5 percentage points represents a reduction in poverty of almost 19 percent in the provinces, while the same drop in the poverty rate translates in poverty reduction of only 5 percent in the *comarcas*. Similarly, the *comarcas* have benefitted relatively less from the reduction in extreme poverty as well. The average fall of 2.5 percentage points in the *comarcas*' extreme poverty rate represents a reduction of less than 4 percent of their extremely poor population, significantly less than the 11 percent reduction in the provinces' population living in extreme poverty that was implied by the rate drop of 0.8 percentage points.

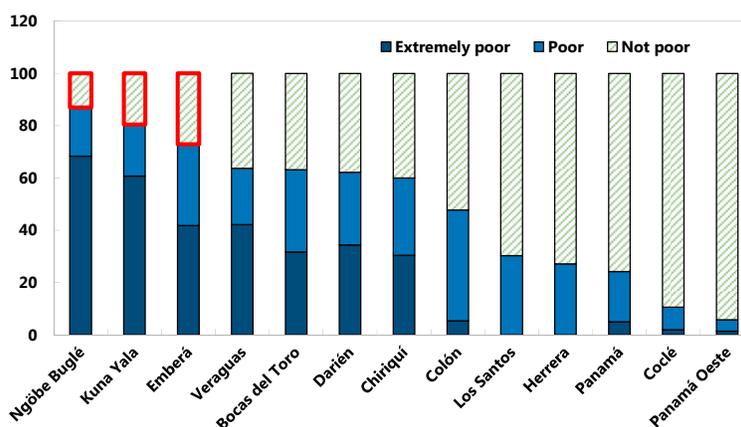
Table 1. Changes in Poverty (2011–2015)

	Poverty		Extreme poverty	
	change in rate (percentage points)	change (percent)	change in rate (percentage points)	change (percent)
Total	-4.6	-16.7	-0.8	-7.2
Provinces	-4.4	-18.9	-0.8	-10.8
Comarcas	-4.6	-5.2	-2.5	-3.7

Sources: Ministry of Economy and Finance (MEF), National Institute of Statistics and Census.
*overall poverty figures refer to period 2011-2015, extreme poverty to period 2012-2015.

16. There are substantial differences in welfare levels between the indigenous population in the *comarcas* and the indigenous persons residing outside the *comarcas*. Poverty incidence is much higher among indigenous persons living in the *comarcas* than among indigenous persons residing in the provinces (Chart 7), which partly reflects difficulties to properly value production for own consumption. For instance, only 14 percent of the indigenous population that lives in the *comarcas* is not considered (extreme) poor, while about 56 percent of the indigenous population living outside the *comarcas* is not affected by (extreme) poverty⁴. In fact, there are not any extremely poor among the indigenous persons that live in certain provinces, such as Los Santos and Herrera.

Chart 7. Distribution of Indigenous Population Welfare Levels
(percent of population, 2015)



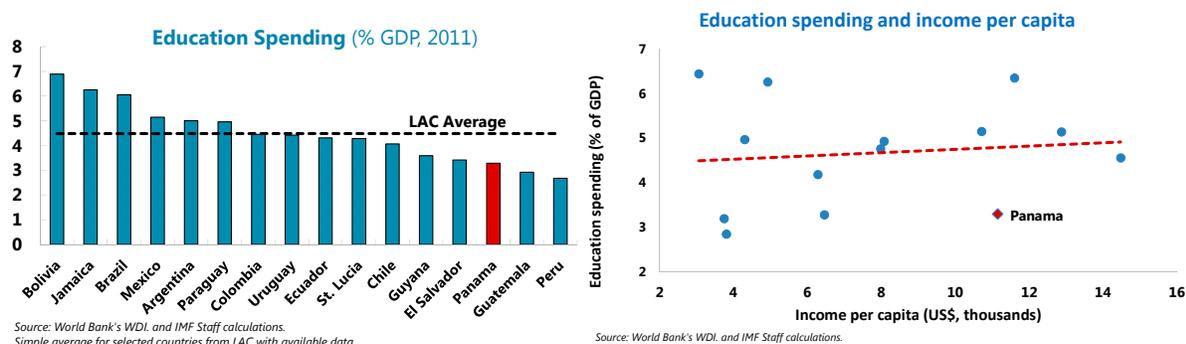
Sources: Ministry of Economy and Finance (MEF) and National Institute of Statistics and Census (INEC)

⁴ There are striking differences between provinces and *comarcas*. For example, 85.6 percent of the indigenous population living in the most populous *comarca* lives in poverty, while only 5.8 percent of the indigenous population that resides in Panamá Oeste province is facing the same problem.

E. Education

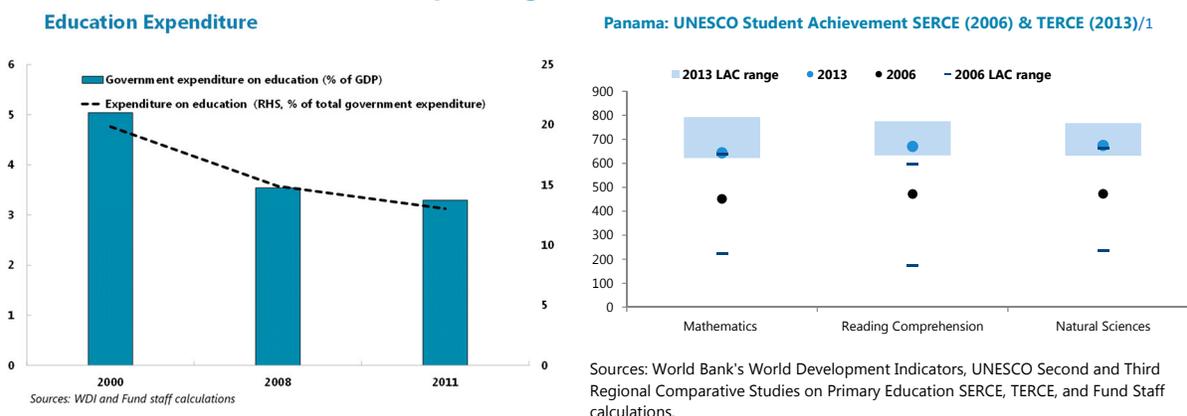
17. Education spending has lagged behind regional peers. With about 3 percent of GDP allocated to the education sector, Panama ranks below the average for the LAC region. Moreover, public education spending falls short of other countries in the region with similar levels of income per capita. In fact, Chart 8 suggests that an increase in education spending of 1.5–2 percent of GDP is needed to place Panama close to the region’s trend.

Chart 8. Education Spending in LAC



18. Education quality and student achievements have been relatively weak along with stagnating spending on public education. Notwithstanding continued efforts to put emphasis on education as a priority sector, spending on public education has been declining as a share of overall government spending since 2000. In addition, student achievement scores, such as those measured by UNESCO, indicate that Panama continues to underperform regional peers despite some improvement over the last decade. Similarly, the results from 2009 Program for International Student Assessment (PISA) suggest that education quality has trailed behind peer countries⁵.

Chart 9. Education Spending and Student Performance in Panama

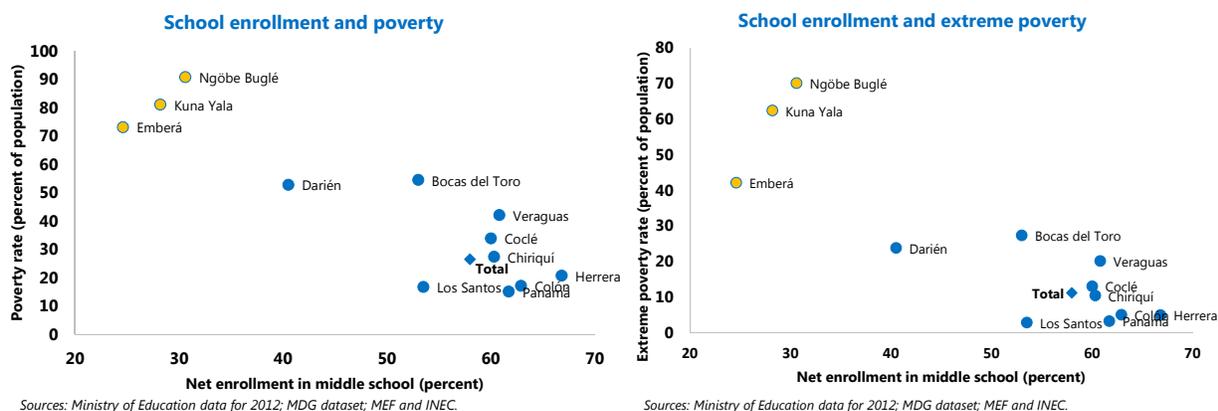


⁵ Panama is set to undergo the next PISA assessment in 2018.

F. Education in Indigenous Areas

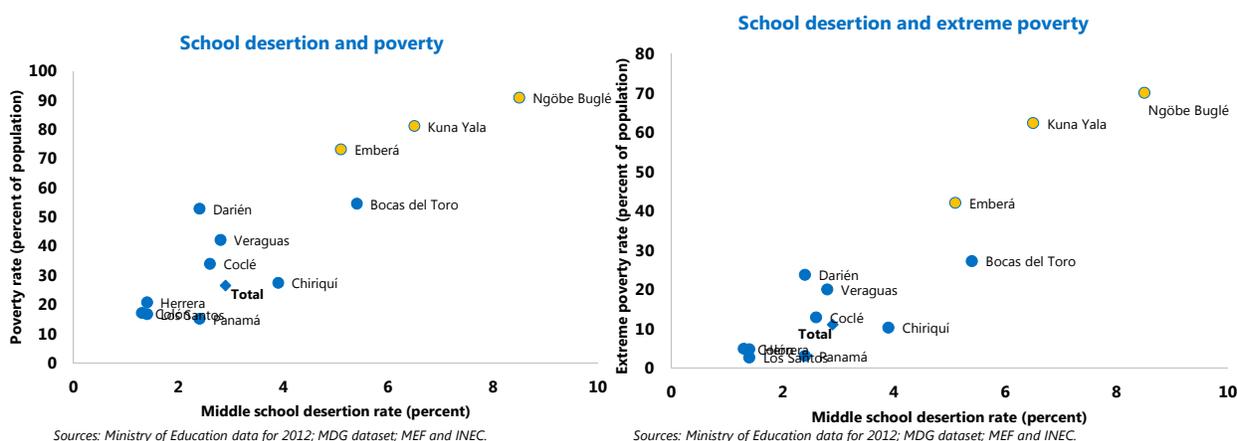
19. Provinces and *comarcas* with weaker education indicators are associated with higher poverty levels. Looking at a cross-regional comparison, higher net enrollment rates are associated with lower levels of (extreme) poverty (Chart 9). In addition, higher middle-school desertion rates are related to higher (extreme) poverty rates (Chart 10).

Chart 10. School Enrollment and Poverty in Panama



20. Indigenous *comarcas* stand out as a group with substantially weaker education indicators and higher poverty than the rest of the country. While the evidence does not imply any causal relationship, it suggests that lowering school desertion rates or raising net enrollment in middle school is an important factor associated with poverty reduction⁶. Hence, an emphasis on specific programs that improve education outcomes in the *comarcas* seems to have the potential for improving broader social outcomes in these regions, bridging their gaps with the rest of Panama.

Chart 11. School Desertion and Poverty in Panama



⁶ Various sources report different figures for school desertion rates across regions. Figures employed here come from the MDG database.

G. Concluding Remarks

21. Panama's outstanding economic growth over the last decades has helped the country reduce its income gap relative to advanced economies. Beyond facilitating income convergence, this stellar growth performance has contributed to significant reductions in poverty and inequality. Economic growth has been biased toward the poorer segments of the population that saw their incomes grow faster than the rest of the country. In sum, there has been progress with shared prosperity and overall inclusiveness improved. Nonetheless, certain parts of the population, particularly the indigenous groups, saw relatively smaller reduction in poverty and continue to face substantially higher poverty rates than the rest of the country. In addition, the indigenous persons are not uniformly affected by poverty, as those living in the semi-autonomous *comarcas* face significantly higher poverty incidence than the indigenous persons that reside outside. Education spending has been declining as a share of total government spending and remains lower than the average in the region. In turn, student performance and education quality scores have been lagging behind peers. Basic education indicators, such as school enrollment and school desertion rates, seem to be strongly associated with differences in poverty rates across regions. In this context, actions that improve education outcomes, particularly those focused on the specific needs of the indigenous population, seem to have a high potential to strengthen overall inclusiveness as well.

References

Berg, A. G. and J. D. Ostry (2011), "Inequality and Unsustainable Growth: Two Sides of the Same Coin?" IMF Staff Discussion Note 11/08, Washington, DC.

Government of Panama (2014), *Government Strategic Plan 2015-2019*.

Government of Panama and UN (2014), *Objetivo de Desarrollo del Milenio, IV Informe de Panamá*.

INEC (2015), *Encuesta de Mercado Laboral 2010-2015*, National Institute of Statistics and Census (INEC), Contraloría General de la República de Panamá.

MEF (2012), *Indigencia y pobreza*, Marzo 2012, Ministry of Economy and Finance, Panama.

MEF (2012), *Pobreza e indigencia*, Marzo 2014, Ministry of Economy and Finance, Panama.

MEF (2015), *Actualización de las líneas de pobreza*, Marzo 2015, Ministry of Economy and Finance, Panama.

World Bank (2015), *Panama: Locking in Success, Systematic Country Diagnostic*, World Bank Group, Washington, DC.

SPILOVERS FROM THE PANAMA CANAL EXPANSION¹

The Panama Canal expansion is a major infrastructure project with large domestic and international spillover effects. The construction of the third set of locks creates new capacity and accommodates much larger vessels. In addition to its direct contribution to growth, increased canal traffic may enhance Panama's position as a logistics hub creating synergies with other sectors of the economy. The expansion also triggered large port investments in the region to accommodate post-Panamax ships. Since the transportation industry features significant economies of scale, the world as a whole will benefit from lower transportation costs.

A. Short History of the Canal

1. The Panama Canal is a key world trade route. The Canal is a 50-mile waterway that connects the Atlantic and Pacific oceans, and guides ships through a system of locks lifting them 26 meters (85 feet) above sea level. Its history goes back to 1881, when France began to work on the canal. Engineering problems and a high mortality rate among workers brought the project to a halt. In 1904, the United States took over the project, and the canal was completed and officially opened on August 15, 1914. The U.S. continued to fully control the canal until the signing of the Torrijos–Carter Treaties in 1977.

2. After a period of joint American-Panamanian management, Panama took over in 1999, and the canal is now fully managed and operated by the Panama Canal Authority (ACP). In 2014, it generated revenues of about \$2.6 billion (5.4 percent of Panama's GDP), and annual traffic had risen from about 1,000 ships in 1914 to more than 13,000. The canal currently serves various important trade routes within the region and with Asia and Europe, and provides a significantly shorter transit between the Atlantic and Pacific oceans than around the treacherous Cape Horn.

B. Trend-Setting and Trend-Following

3. The Panama Canal determined the standards for a significant part of the ship-building industry over the twentieth century. Ships traveling through the canal have to meet the "Panamax" vessel specifications, mainly determined by the dimensions of the canal's lock chambers, and the height of the "Bridge of the Americas" at Balboa.

4. Technological advancement and increase in trade volumes have shifted the industry towards larger vessels that exceed the Panamax specifications in recent decades. These larger ships, known as post-Panamax, offer considerable economies of scale, resulting in significant savings in transportation costs, especially important for low-unit-value products. While in 1990 almost all container ships could transit the Panama Canal, by 2006 over 27 percent, and now almost a half of

¹ Prepared by Ana Ahijado, Metodij Hadzi-Vaskov, Andras Komaromi (all WHD), and Diego Cerdeiro (SPR).

the global containership fleet could not fit into the Panamax standard. Moreover, the trend in new orders for construction of container vessels shows a clear leaning toward post-Panamax.

5. Maintaining the comparative advantage of the Panama Canal on key market segments was a major rationale for the expansion project. For instance, studies prepared in the run-up to the 2006 Referendum emphasized that the expansion project will help the Panama Canal maintain its comparative advantage with respect to Suez on the Asia – US East Coast route. While the Panama Canal offers a considerable advantage in terms of Panamax-size vessel productivity (each vessel makes 6.5 roundtrips on the route compared to 4.7 roundtrips per year on the Suez route) and transportation costs (lower by about a quarter), this advantage is eroding with larger-size vessels.

6. The expansion consists of the installation of a third, larger lane of locks and additional depth throughout the 50-mile passage. The overall investment project, which started in 2007 following the approval by the October 2006 referendum, is estimated at about \$5.3 billion. As of March 2016, the expansion work is over 97 percent complete and the expanded Canal is expected to be inaugurated on June 26, 2016. It will double the Canal’s capacity, allowing it to accommodate the larger post-Panamax vessels.²

7. The expansion project has attracted contractors and financing from different parts of the globe. Over a dozen contractors and suppliers from various countries around the world have been involved in the expansion and the project received financing from four continents (Chart 1). While the international content of operations is typically high in projects that are relatively large compared to the size of the host economy, the novelty with the Canal expansion is its contribution to generating (complementary) investments in other countries (Section E).

C. Internal Spillovers

8. Canal traffic is expected to grow faster than world trade, contributing to Panama’s favorable growth outlook. According to the IMF’s World Economic Outlook (as of April 2016), world trade is expected to grow at an average annual rate of 4.2 percent over 2017-2022. The growth in Canal traffic in the short and medium term is expected to be somewhat decoupled from world trade growth, as some traffic currently using the intermodal system through U.S. west coast ports and the Suez Canal is diverted towards the expanded Canal.

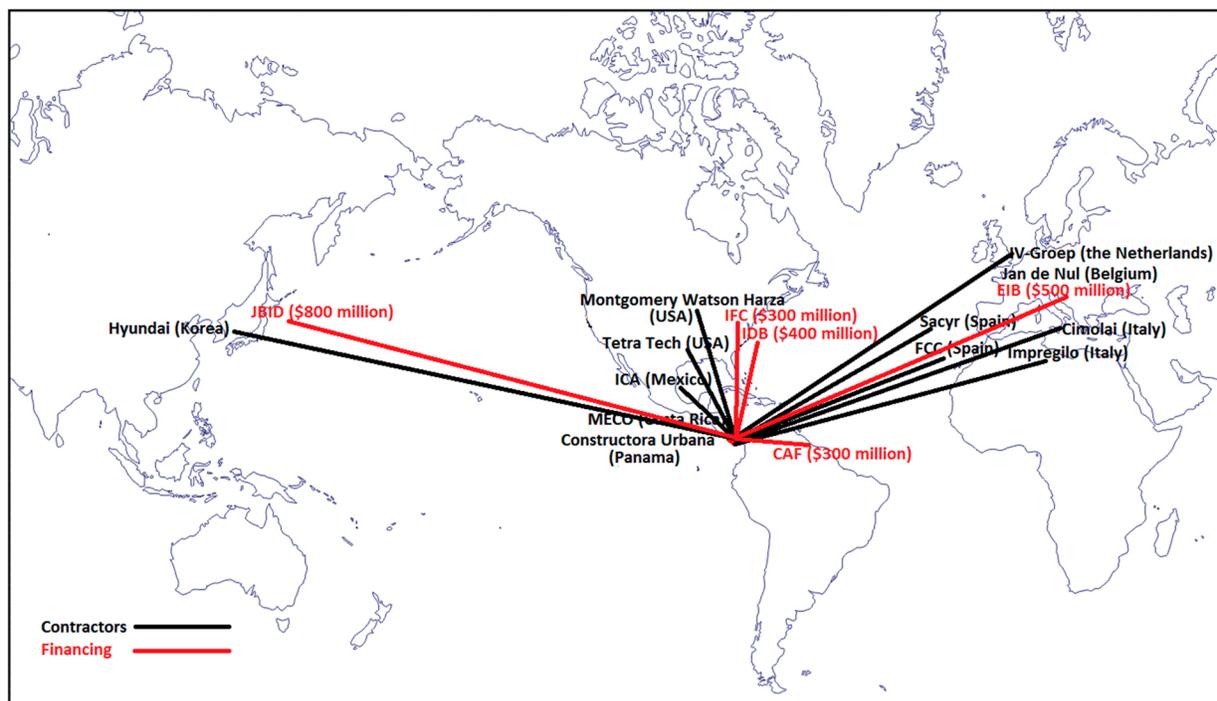
9. Trade diversion is mainly driven by the savings in transportation costs from utilizing post-Panamax vessels. In addition, disruptions caused by strikes in U.S. west coast ports are expected to have a long-term impact on their competitiveness and contribute to diverting business toward the expanded Canal. A report by the Boston Consulting Group (2015) projects an increase in

² As of 2012, post-Panamax vessels accounted for 16 percent of the container ships fleet and 45 percent of the fleet’s capacity. These figures are expected to reach, respectively, 27 percent and 62 percent by 2030. See “U.S. Port and Inland Waterways Modernization: Preparing for Post-Panamax Vessels,” Institute for Water Resources, U.S. Army Corps of Engineers, June 20, 2012.

(continued)

the east coast share of U.S. Asian imports from 35 percent to 50 percent by 2020, against 40 percent without the expansion. Assuming that Asia-U.S. trade grows in line with world trade, and considering that Asia-U.S. east coast traffic currently represents about a third of total Canal traffic, the implied growth rate of Canal traffic is 6.5 percent.³ If the expanded Canal also gains share in other routes, then the implied rate would be higher.

Chart 1. Geographic Distribution of Contractors and Financing Sources for the Expansion



Sources: ACP website.

10. New opportunities around the expanded Canal may enhance Panama's position as a logistics hub. The expansion has helped generate port investments within Panama, supported several ongoing initiatives for expanding port facilities, and raised the potential for developing LNG terminals and achieving higher use of LNG in Panama. In addition, with the expanded canal allowing for more and larger vessels, there is an opportunity to develop hub-spoke economies moving cargo from smaller to larger vessels for the longer hauls (Hummels, 2007).

11. Future investment projects can create synergies with other sectors of the economy. Such investments include building new container ports that accommodate bigger ships, roll-on roll-off ports for automobile cargo, and LNG facilities with the potential to convert Panama into a regional energy hub. These developments will also create synergies with other sectors where the

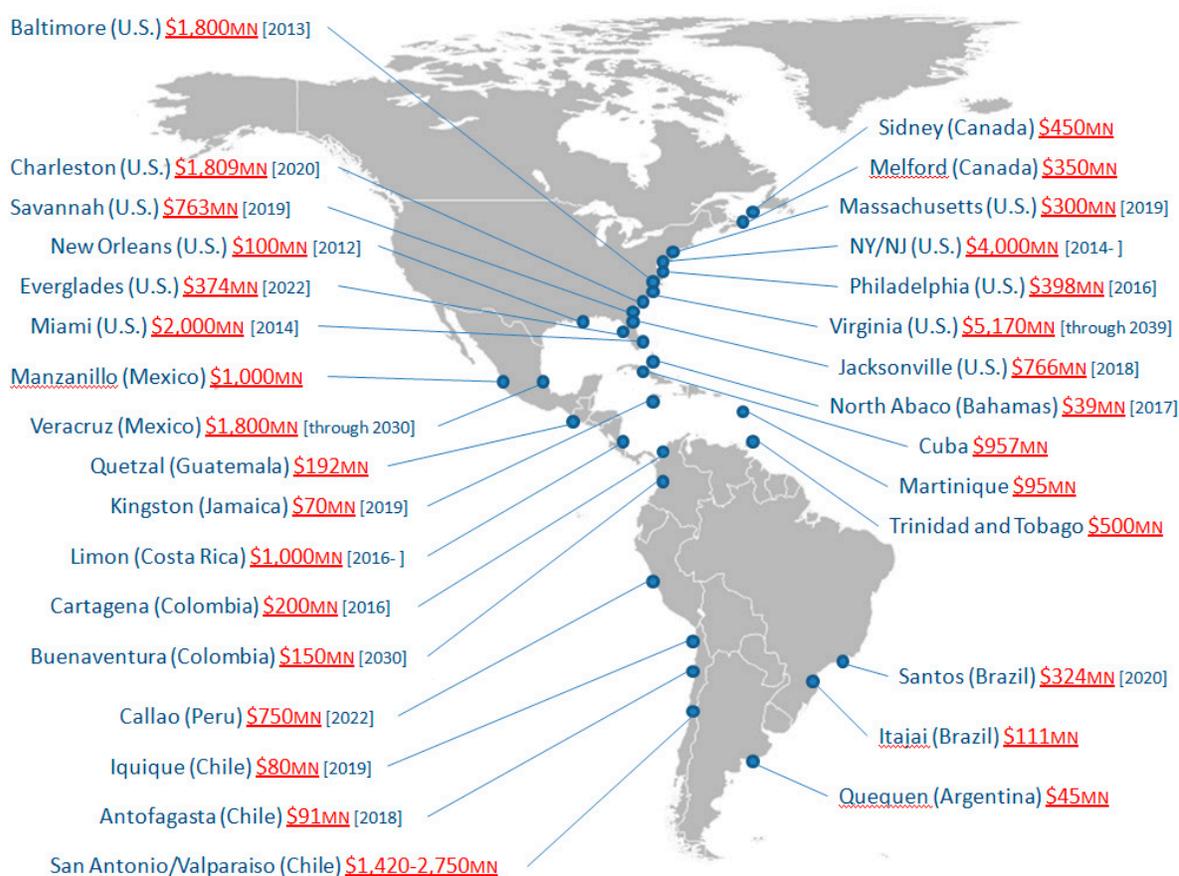
³ This back-of-the-envelope calculation assumes that canal traffic on all other routes also grows at the rate of world trade.

Panamanian economy acts as a regional hub, such as travel through the national airline Copa, which accounts for about 4 percent of GDP, commerce, and banking.

D. International Spillovers

12. The Canal expansion is one of the largest infrastructure projects in the world, and it has substantial multiplier effects throughout the logistics network in the region. There are about \$25bn worth of executed, ongoing or planned port investments to accommodate the post-Panamax ships that will go through the new set of locks (Chart 2). That is roughly 5 times the cost of the expansion project (albeit over time).

Chart 2. Regional Port Investments to Accommodate Post-Panamax Vessels 1/
Completion date in brackets (when available)



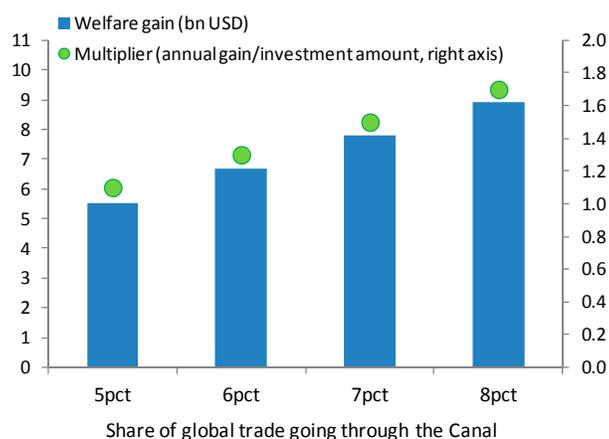
1/ Investments in U.S. west coast ports are excluded, as they are less likely to have taken place due to the canal expansion.

Source: Fund staff calculations based on various news and government sources (see Appendix).

13. The expansion will also have large multiplier effects through economies of scale in transportation. International cargo shipping involves strong economies of scale. For example, the annual operating cost per unit of transportation capacity is estimated to be 37.4 percent lower for

post-panamax than for panamax container vessels (Rodrigue, 2013). Industry estimates suggest that oil tankers can achieve, on average, 15 percent lower unit shipping costs by using the new larger locks. In our back-of-the-envelope calculation we use the midpoint of these two estimates, and assume that the expanded Canal facilitates a 26 percent drop in trade costs. Fan, Lai and Qi (2015) show that, for a broad class of international trade models, the only first order effect on global welfare from reduction in trade costs is the direct effect. That is, when terms of trade effects can be ignored, welfare gains from lower trade costs equal (to a first order approximation) the savings in trade costs. Using information on the expected share of post-panamax vessels in the world fleet and average ad-valorem equivalents of shipping costs, Chart 3 shows the annual global welfare gains of the expansion for different assumptions on the share of world cargo taking the Canal route.⁴ In a scenario where the Canal maintains its current share of 5 percent of global trade, the annual global welfare gains exceed the \$5.3bn investment, yielding a multiplier of 1.1 within a single year.⁵

Chart 3. Global Welfare Gains From Lower Transportation Costs

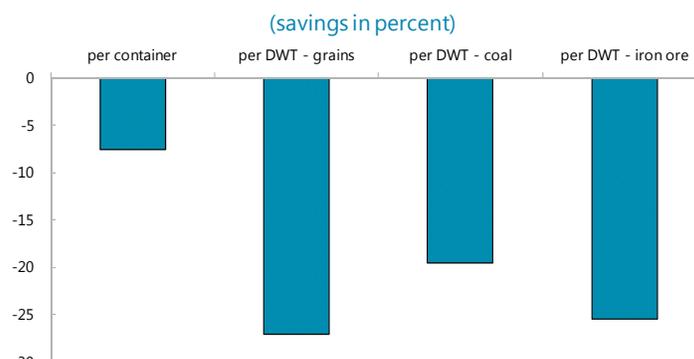


Source: Fund staff calculations.

14. Savings due to lower transportation costs are not retained as rents within Panama. The significant savings generated by the use of larger vessels could offer an opportunity for the Canal to capture higher fees without affecting its competitive position. Nonetheless, the new toll structure in force since April 1, 2016 implies that tolls per unit transported through the Canal (containers or DWTs) actually decline, implying that Panama does not retain these savings as rents (Chart 4).

⁴ Currently 5 percent of world trade is estimated to go through the Canal. Ad-valorem transportation costs are assumed to be of 8 percent (see Hummels, 2007). The estimate assumes an expanded Canal operating at full capacity. Total world trade figures are taken from the WTO's International Trade Statistics.

⁵ Considering the range of transportation cost reductions across various cargo types (15-37 percent), this multiplier could be between 0.6 and 1.5.

Chart 4. Panamax and Post-Panamax Tolls

1) Container: 5k TEU vs 12k TEU at 75 percent capacity; dry bulk: 52.5k DWT vs. 165 DWT at 75 percent capacity.

Source: Staff calculations based on ACP fee structure.

E. Conclusion

15. The Canal expansion will have far-reaching effects both within and outside of Panama.

The canal is expected to re-gain some of the market share that it had lost to other maritime routes due to vessel size limitations. Panama can benefit from the increase in passing cargo and the opportunities it creates for other value-added activities along the logistics chain. At the same time, the change in transportation technology will affect the shipping industry and final consumers around the world. Seaports in the region have been upgrading their infrastructure to capture some of the new business generated by the ships that now take the Panama route. The savings from the fall in transportation costs due to economies of scale can also be substantial. Although there is considerable uncertainty in the estimates, our calculations suggest that the canal expansion project has an impressive social rate of return.

References

- Boston Consulting Group (2015), *Wide Open: How the Panama Canal Expansion is Redrawing the Logistics Map*, June 2015.
- Fan, H., E. Lai, and H. Qi (2015), "Global Gains from Reduction of Trade Costs", manuscript.
- Hummels, D. (2007), "Transportation Costs and International Trade in the Second Era of Globalization", *Journal of Economic Perspectives*, 21 (3), 131-154.
- Rodrigue, J.-P. (2013), "The Geography of Transport Systems" (3rd ed.), Routledge, NY.
- U.S. Department of Transportation and Maritime Administration (2013), "Panama Canal Expansion Study", Phase I Report: Developments in Trade and National and Global Economies. November 2013.
- World Trade Organization (2014), *International Trade Statistics*.

Appendix I. World Port Locations

Port Location	Source
Baltimore (U.S.)	"Panama Canal's Growth Prompts U.S. Ports to Expand," The New York Times, Aug 20, 2012
	"PORT OF PHILADELPHIA: Controller Studies Southport's Potential," Philly Record, Jun 18, 2015
	"Port suffers a setback," The Baltimore Sun.com, Aug 29, 2014
Charleston (U.S.)	"Panama Canal Expansion Has U.S. Ports Rushing," Governing, Jul 2012
	"Ports, Shipping Companies Retool for Bigger Panama Canal," The Wall Street Journal, Feb 17, 2014
	"Panama Canal's Growth Prompts U.S. Ports to Expand," The New York Times, Aug 20, 2012
Savannah (U.S.)	"Racing To Be Ready – U.S. Ports Prepare for Post Panamax Era," Business Facilities, Sep 24, 2013
	"Charleston seeks to be 'Top 5' container port by 2020," American Shipper, Sep 15, 2015
	"Savannah port volume growth deceleration points to weaker West Coast Diversions," Journal of Commerce, Sep 21, 2015
New Orleans (U.S.)	"Savannah Harbor Expansion Project" US Army Corps of Engineers, Mar 21, 2013
	"Rising Tides," GeorgiaTrend, Jan 2015
	"Progress and Pollution: Port Cities Prepare for the Panama Canal Expansion," Environmental Health Perspectives
Everglades (U.S.)	"Racing To Be Ready – U.S. Ports Prepare for Post Panamax Era," Business Facilities, Sep 24, 2013
	"Heavy plant investment fuels strong breakbulk import growth in US Gulf," Journal of Commerce
	"Alabama Port Already Bulk Up for World's Giant, Post-Panamax Ships," Business Alabama, Oct 2015
Miami (U.S.)	"Harbor Deepening and Widening," Port Everglades.net
	"PORT OF PHILADELPHIA: Controller Studies Southport's Potential," Philly Record, Jun 18, 2015
	"Miami is betting big that expansion of Panama Canal will bring in megaships," Sep 21, 2014
Jacksonville (U.S.)	"Ports, Shipping Companies Retool for Bigger Panama Canal," The Wall Street Journal, Feb 17, 2014
	"Panama Canal Expansion Has U.S. Ports Rushing," Governing, Jul 2012
	"Port of Miami enters big ship era," American Shipper, Nov 2015
Massachusetts (U.S.)	"South Florida ports make regional pitch for cargo," American Shipper, Oct 1, 2015
	"The siren song of deep water: Ports race to accommodate post-Panamax ships," AlJazeera, Mar 9, 2015
	"PORT OF PHILADELPHIA: Controller Studies Southport's Potential," Philly Record, Jun 18, 2015
New York/New Jersey (U.S.)	"JaxPort to get \$27.5 million in state funds for port improvements," The Florida Times, Jacksonville, Sep 25, 2013
	"Panama Canal expansion to have major impact on Boston," The Boston Globe, Mar 16, 2014
	"New York Ports Losing to Baltimore on Panama Canal Growth," Bloomberg Business, Jul 17, 2014
Philadelphia (U.S.)	"Progress and Pollution: Port Cities Prepare for the Panama Canal Expansion," Environmental Health Perspectives
	"The Post-Panamax Effect: How the Panama Canal Expansion is Reshaping America's Ports," Blueprint, CBRE, Jul 21, 2015
	"PORT OF PHILADELPHIA: Controller Studies Southport's Potential," Philly Record, Jun 18, 2015
Virginia (U.S.)	"Virginia aims for \$670 million in new port investment," American Shipper, Nov 20, 2015
	"Fitch Upgrades Virginia Port Authority's Port Facilities Revenue Bonds to 'A+,'" Business Wire, Feb 27, 2015
Sidney (Canada)	"Nova Scotia port starts marketing campaign for container terminal," American Shipper, Jul 9, 2012
Melford (Canada)	"Mega Container Ship Port for Eastern Canada?," The Maritime Executive, Sep 24, 2015
Manzanillo (Mexico)	"Manzanillo readies for Panama Canal expansion with new cranes," Jul 2, 2015
Veracruz (Mexico)	"APM Terminals Wants In on Veracruz Port Expansion," World Maritime News, Sep 3, 2015
Quetzal (Guatemala)	"Veracruz, Lazaro Cardenas focus of major Mexican port investment," Journal of Commerce, Jul 9, 2015
Limon (Costa Rica)	"Guatemalan port prepares for post-Panamax ships," Journal of Commerce, Sep 3, 2014
Cuba	"APM Terminals Moin Prepares to Expand Costa Rica's Refrigerated Export Capabilities," Oct 19, 2015
	"El proyecto de puerto para contenedores de Limón-Moín, Costa Rica," IDB
Kingston (Jamaica)	"Keep your eyes on Cuba as big business docks in Port Everglades," Sun-Sentinel, Aug 18, 2015
	"Puerto cubano de Mariel espera ser enlace principal con ampliación Canal Panamá," El Nuevo Herald, Apr 14, 2015
Cartagena (Colombia)	"Making Jamaica's logistic hub a reality," Jamaica Observer, Apr 9, 2014
	"Jamaica Investment Opportunities," Trade and Investment Jamaica.org
	"A \$200 Million Expansion Project at this Caribbean Port," The Caribbean Journal, Aug 24, 2015
Buenaventura (Colombia)	"Puertos duplicarán capacidad frente al Canal ampliado," Capital Financiero, Jul 7, 2014
	"Colombian port of Cartagena to be expanded to handle post-Panamax ships," Fox News Latino, Aug 14, 2015
Callao (Peru)	"Expertos en el movimiento de contenedores," Cinco Dias, Sep 3, 2014
	"Big hardware arrives in Callao," Maersk, Sep 3, 2014
	"Empresarios temen que los puertos de la región desplacen a panameños," Panama America, Sep 16, 2014
Iquique (Chile)	"Port of Callao," World Ports Source
Antofagasta (Chile)	"Chile's Iquique port plans \$80 million expansion," Journal of Commerce, Sep 17, 2014
San Antonio/ Valparaiso (Chile)	Plan Nacional de Desarrollo Portuario, 2013, p. 111
North Abaco (Bahamas)	Plan Nacional de Desarrollo Portuario, 2013, p. 111
Martinique	"Ampliación y apertura de nuevas vías interoceánicas abren el apetito del Caribe," Mundo, Jan 18, 2015
Trinidad and Tobago	"Martinique Eyes Future as Logistics Hub," Caribbean Journal, Oct 7, 2013
Santos (Brazil)	"Ampliación y apertura de nuevas vías interoceánicas abren el apetito del Caribe," Mundo, Jan 18, 2015
	"Santos Brazil invest 324.4 million USD in expansion of Tecon Santos terminal," Maritime News, Oct 07, 2015
	"Santos Brazil wins extension, \$324 million investment to follow," Journal of Commerce, Oct 15, 2015
Itajai (Brazil)	"Brazil undergoes policy shift it hopes will spur port investment," Journal of Commerce, Sep 24, 2015
	"New Productivity Record for APM Terminals Itajai," APM Terminals, May 7, 2015
	"APM Terminals onpath to growth," Apr 2013, Latin America Edition
Quequen (Argentina)	"Quequén Port adapting to expanded Panama Canal, expected higher exports," Antares Shipping, May 5, 2014