



COSTA RICA

TECHNICAL ASSISTANCE REPORT- MACROPRUDENTIAL POLICY AND MODELING

December 2023

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COSTA RICA

MACROPRUDENTIAL POLICY AND MODELING

**Torsten Wezel (MCM, Head) and Pamela Madrid (MCM); Mario Tamez (LEG);
and Michel Canta (Expert)**

December 2012

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GLOSSARY

BCCR	Banco Central de Costa Rica
CONASSIF	National Council of Financial System Supervision
CVM	Macroprudential Monitoring Committee
LMV	Ley Reguladora del Mercado de Valores
SUGEF	Superintendency of Financial Institutions
SUGESE	Superintendency of Insurance
SUGEVAL	Superintendency of Securities
SUPEN	Superintendency of Pensions
SIFI	Systemically important financial institution

PREFACE

An IMF technical assistance mission visited San José, Costa Rica during August 13–17, 2012 at the request of the Banco Central de Costa Rica (BCCR).¹ The mission’s main objective was to provide advice on improving the institutional arrangements for conducting macroprudential policy. The mission team also assessed the preconditions for introducing dynamic loan-loss provisioning and integrating a financial sector block in the BCCR’s macroeconomic projection model.

The mission met with the President of the BCCR, Mr. Rodrigo Bolaños and several BCCR officials; the Superintendent of Banks, Mr. Francisco Lay; the Superintendent of Securities, Mr. Carlos Arias; the Superintendent of Insurance, Mr. Javier Cascante; and the Superintendent of Pensions, Mr. Edgar Robles. The mission team also met with Mr. Herman Hess, Mr. Paul Bordemisza and Mr. Víctor Garita, directors of the National Council of Financial System Supervision (CONASSIF) and its legal counsel, Mr. Eduardo Lizano, Honorary President of the *Academia de Centroamérica*, Mr. Francisco de Paula Gutiérrez, professor of INCAE, former high-ranking officials of BCCR and with Ms. María Emilia Chacón, Lawyer former official of CONASSIF. The authorities agreed to have follow-up missions in order for the mission team to present its detailed proposals for the various issues under consideration.

The mission team is grateful for the excellent cooperation, in particular for the in-depth discussions with management and technical staff of the respective institutions.

The aide-mémoire summarizes the mission team’s main findings. The final version reflects comments received from reviewers at the IMF, as well as the authorities’ response to this draft.

¹ The mission team was comprised of Torsten Wezel (head, MCM), Pamela Madrid Angers (MCM), Mario Tamez (LEG), and Michel Canta (external expert).

MAIN RECOMMENDATIONS

Short-term

- Establish a financial stability unit in the central bank to strengthen systemic risk identification, monitoring and analysis.
- Strengthen the coordination between BCCR, CONASSIF, and the four superintendencies by establishing a technical coordinating group and high-level council. This improved coordination should include both the sharing of information and evaluating macroprudential policies options.

Medium-term

- Enhance the BCCR's quarterly macroeconomic projection model for the Costa Rican economy by integrating financial sector frictions, prudential regulation measures, and results of stress testing exercises. Embark on integrating a financial sector block into the new DSGE model.
- Strengthen CONASSIF's operational independence and increase its accountability.
- Revisit the perimeter of financial sector regulation in an effort to strengthen CONASSIF's ability to monitor and mitigate systemic risk.
- Develop a framework to regulate systemically important financial institutions in line with Basel's D-SIBs framework.
- Adopt a dynamic provisioning system to offset rising provisioning cost during economic downturns.
- Implement macroprudential tools and policies to address financial system risks emanating from volatile credit expansion and financial dollarization.

I. INTRODUCTION

1. **In recent years, Costa Rica—a small open economy—has experienced strong and volatile credit growth.** Before the global financial crisis, annual credit growth rates hovered between 20–40 percent (but were as high as 55 percent for local currency credit), raising the credit-to-GDP ratio from 40 percent in 2003 to about 55 percent in 2011. The crisis caused a temporary credit crunch, with low growth in domestic currency credit and negative growth in foreign currency credit. Recently, credit growth rebounded to 12 percent.
2. **In light of such developments and potential spillovers from the uncertain external environment, CONASSIF created a Macroprudential Monitoring Committee (CVM) in November 2011.** This committee was given a responsibility for identifying systemic risks and proposing a set of macroprudential measures to mitigate these risks. However, in the past coordination between the agencies potentially in charge of macroprudential policy has not always been free of frictions. Weak mandates for macroprudential policy and restrictions to the sharing of relevant data between the institutions have been detrimental in this regard. Importantly, the BCCR plays a limited role in the CVM. Nevertheless, this committee appears as an important first step in establishing a framework for the strengthening coordination among the relevant authorities.
3. **Considering the current framework for conducting macroprudential policy sub-optimal, the BCCR in 2011 requested IMF technical assistance.** As a precursor to the current TA project, a Fund mission in February 2012 informed senior staff of the BCCR, CONASSIF, and the financial superintendencies on (i) the merits of macroprudential policy; (ii) the strengths and weaknesses of stylized institutional models for macroprudential policy; (iii) the characteristics of its main instruments; (iv) countercyclical components of the Basel III Accord; (v) methodologies for identifying and regulating systemically important financial institutions; and (vi) incorporating financial sector characteristics into the macroeconomic projection model of the BCCR. During follow-up discussions, the authorities identified five areas of concern and subsequently provided information about the importance, associated risks, achievements to date, availability of information, and remaining challenges associated with these issues.
4. **Specifically, the authorities are seeking advice in the following areas:**
 - **Institutional framework for conducting macroprudential policy:** The authorities' aim to improve and adequately integrate the management of macroprudential policy, establishing clear mandates and responsibilities, coordination mechanisms, and decision-making processes as well as implementing macroprudential measures. The authorities are seeking Fund advice on defining the roles of the agencies in charge, forming technical units/working groups for evaluating systemic risks, clarifying the functions of the different agencies to safeguard a balance of powers, and establishing a framework for the flow of information as well as for accountability in executing

macroprudential policy. Specifically, the BCCR has proposed setting up a separate unit for measuring system risk as a short-term measure, and the creation a Council for Financial Stability over the medium term.

- **Dynamic loan-loss provisioning:** The current loan classification framework does not require a generic provision, leaving performing loans entirely uncovered for latent credit risks (e.g., due to the economic cycle). The authorities recognize the need to reform provisioning rules in light of a procyclical credit origination and loss pattern and are thus seeking guidance on designing a dynamic provisioning system that takes account of the system's vulnerabilities and the economic cycle of Costa Rica.
- **Systemically important financial institutions:** A number of banking and other financial institutions are considered to be of systemic importance. The authorities have expressed their interest in obtaining criteria to define systemic institutions beyond mere size (e.g., interconnectedness, lack of substitution, and complexity) and regulatory measures to deal with such entities (e.g., capital surcharges).
- **Household exposure limits:** The indebtedness of households has increased significantly in recent years, including in foreign currency against household earnings in local currency, thereby giving rise to systemic risk. The authorities are therefore seeking to implement exposure limits, such as loan-to-value, debt-to-income, and FX-debt-service-to-income ratios.
- **Modeling of the financial sector and integration into the BCCR's macro model:** The quarterly macroeconomic projection model does not include a financial sector that may be the source of important shocks. The authorities are seeking advice on how to model a stylized financial sector and integrate it in their macro model in order to analyze the impact of financial frictions and, possibly, macroprudential instruments on the real economy. The BCCR is in the process of developing a DSGE model, supported by separate Fund TA, and would like to have this model augmented by a financial sector block at a later stage as well.

5. **Given the wide scope and complexity of the issues to be investigated, the technical assistance will be delivered in multiple stages.** The initial mission has focused on the institutional arrangements for macroprudential policy, while also doing some initial work on dynamic provisioning and modeling of the financial sector in the macroeconomic projection model. Subsequent missions will address the measurement of systemic risk and handling of systemically important institutions (SIFIs) as well as the development of suitable macroprudential instruments.

II. REFORMING THE INSTITUTIONAL ARRANGEMENTS FOR MACROPRUDENTIAL POLICY

A. Main Institutions and Legal Framework

6. **The agencies in charge of financial stability and financial sector oversight are the BCCR, and CONASSIF and the four financial superintendencies.**² Their mandates and responsibilities are set out in corresponding laws: BCCR Organic Law No. 7558 (“BCCR Law”), *Ley Reguladora del Mercado de Valores* (LMV), *Ley de Protección al Trabajador*, *Ley Régimen Privado de Pensiones Complementarias*, and *Ley Reguladora del Mercado de Seguros*. They can only exercise those powers that are granted them by legislation and the scope of application of those powers is determined by the objectives established by the legal framework.

BCCR

7. **The BCCR has an explicit mandate to promote a stable, efficient, and competitive financial system.** The main objectives of the BCCR are maintaining internal and external stability of the national currency and ensuring its convertibility with other currencies. As secondary objectives, the BCCR Law provides for the promotion of the development of the Costa Rican economy (with the objective of achieving full employment of national resources), the normal functioning of the payments system, and *of a stable, efficient and competitive system of financial intermediation* (Article 2 BCCR Law). In addition to its essential functions for the achievement of said objectives are the promotion of favorable conditions that will strengthen liquidity, solvency and sound performance of the national financial system, determining general policies for credit and for the surveillance and coordination of the national financial system, and the *issuance of regulation* for the creation, performance and control of financial entities (Article 3 BCCR Law).

8. **Its organic law empowers the BCCR to adopt measures that are instrumental for financial stability.** Specifically, the BCCR can:

- Provide emergency liquidity assistance to supervised entities (Article 52).
- Establish reserve requirements (“*encaje mínimo legal*,” Article 62).
- Regulate the limits of the foreign exchange position of financial entities (Article 88).

Furthermore, the BCCR Law provides for the adoption of temporary extraordinary measures, when the economy shows evidence of disequilibrium that could not be controlled by the monetary policy instruments. Such measures include the establishment of global limits to

² The four superintendencies are the Superintendency of Financial Institutions (SUGEF), the Superintendency of Insurance (SUGESE), the Superintendency of Securities (SUGEVAL), and the Superintendency of Pensions (SUPEN). Financial institutions are defined as banks and other credit institutions.

credit and the investments of supervised entities, as well as exchange controls (Articles 77 to 84). The BCCR has the power to request information necessary for its functions.

9. **The main decision body of the BCCR is the seven-member Board of Directors.** It consists of the president of the BCCR (president), the Minister of Finance and five independent non-executive members. Meetings require a quorum of four members and decisions are taken by majority vote (a decision of the use of temporary instruments, e.g., global limits on credit, requires five votes). The president is responsible for oversight of the BCCR's objectives and can break a tie in votes among the Board.

10. **For purposes of accountability, the BCCR is legally obliged to provide information to the public on the economic situation and corresponding policy, as well as appear before congress.** The BCCR must publish relevant information related to its financial situation (e.g. its balance sheet) and monetary program, as well as an annual report that covers the material economic events of the year (Articles 14 to 16). Once a year, the president of the BCCR must give an oral report (and submit a written report) that covers monetary, currency, credit, and financial policies and the use of international reserves, as well as the results from the promotion of favorable conditions for the strengthening of liquidity, solvency and effective functioning of the financial system (Article 29). In addition, the BCCR is subject to the supervision of the *Contraloría General de la República* (Article 13).

CONASSIF and Superintendencies

11. **The four financial superintendencies function under the direction of CONASSIF, although it is not a legal entity.** CONASSIF is made up of the BCCR President, the MoH, and five independent directors.³ The independent members are appointed by the Board of Directors of the BCCR for a five-year term. The heads of the Superintendencies may attend the meetings of CONASSIF, but cannot vote (Article 169, LMV). Since CONASSIF is not a legal entity, it does not have a legal capacity (i.e., cannot sue or be sued). Among the functions of the CONASSIF are: (i) appoint and remove the heads of the Superintendencias; (ii) approve regulations related to the authorization, regulation, supervision, and oversight that the Superintendencias should execute; (iii) order the suspension of operations and the intervention of financial institutions; and (iv) regulate the exchange of information among the Superintendencias, so they can fully discharge their prudential obligations (Article 171 LMV).

³ In case CONASSIF must address an issue related to the Superintendency of Pensions, the MoH is substituted by the Minister of Labor and a person designated by the Board of Directors of the BCCR on the basis of a proposal by the assembly of workers of the *Banco Popular y de Desarrollo Comunal* is added .

12. **The superintendencies are independent (with respect to their functions), but the BCCR approves their budget, and regulations must be approved by CONASSIF.** Each of them is regulated by the BCCR Law, but each is an “*órgano de desconcentración máxima*” (fully decentralized entity) of the BCCR. This legal term signifies that despite a certain degree of subordination they enjoy the highest possible degree of independence from the BCCR.⁴ They also have a legal capacity (i.e., can sue or be sued). However, CONASSIF approves their regulations and interventions. For example in banking supervision, CONASSIF approves regulation in connection with: (i) capitalization; (ii) procedures for the determination of the assets of the entities; and (iii) maintaining the stability, solvency and transparency of the operations of the supervised entities (Article 131 n).

13. **CONASSIF recently created a Macroprudential Monitoring Committee (CVM).** Given the volatility of the international financial markets, the uncertain outcome of the financial crisis, and potential spillovers, the CVM was created in November 2011. This committee is composed of three of CONASSIF’s independent directors, tasked with identifying possible systemic risks and proposing a set of macroprudential measures to CONASSIF. The four superintendents also actively participate and there is a technical group composed of the general directors or division heads of supervision of the four superintendencies. A high-ranking BCCR official currently acts as the CVM’s secretary and assists in coordination.

A. Legal and Organizational Frictions in the Institutional Framework

14. **Prudential regulation and supervision are highly fragmented in Costa Rica.** The system is more fragmented than in other large Latin American countries given that: (1) there are four separate superintendencies; (2) CONASSIF approves several of the regulatory and supervisory actions of the superintendencies; and (3) CONASSIF faces challenges in effectively directing the superintendencies.⁵

15. **The mission has identified a number of key challenges in the current institutional framework that need to be addressed to enable effective macroprudential policies.** These challenges include:

- **Information sharing among SUGEF and the BCCR is mostly done on an ad-hoc basis.** Due to legal considerations on restrictions in sharing information, the SUGEF does not always share key information for measuring and, ultimately, mitigating systemic risk. While the BCCR may request key financial information,⁶ the lack of an

⁴ However, *de facto* they are not fully operationally independent from the BCCR in terms of their budget.

⁵ The weaknesses with the institutional framework were noted in past FSAPs.

⁶ The Board of Directors of the BCCR, with the agreement of at least five of its members, can request from SUGEF the relevant information for the discharge of its legal functions (Article 132 BCCR Law). In addition,

explicit information-sharing mechanism and more continuous flow of information weaken the effectiveness of the current macroprudential arrangement.

- **CONASSIF faces challenges in effectively directing the superintendencies.** The ambiguous legal mandate of CONASSIF gives rise to different legal interpretations about the functions and leadership of CONASSIF in relation to the management of the four superintendencies, although the superintendents generally agree that CONASSIF is their directive organ.
- **The legal autonomy of the relevant authorities creates uncertainty about the specific powers among them.** Despite its budgetary dependence on the BCCR, CONASSIF is an autonomous body, and the superintendencies are fully decentralized bodies. These entities pursue specific objectives and may not have sufficient incentives to consider the broader consequences of their actions. In this regard, when attempting to supervise a financial group that has entities supervised by the different superintendencies, there does not seem to be mechanisms to clearly determine the lead supervisory agency and ensure proper coordination among them.
- **There are no clear mandates for CONASSIF with regard to financial stability and macroprudential issues.** CONASSIF does not have a clear role in executing macroprudential oversight on the financial system, although its Board can influence the macroprudential arrangement through microprudential measures, directing the superintendencies in this regard. As the Board for all the financial sector supervisors, it is uniquely positioned to coordinate the cross-sectoral issues.
- **Entities that may affect the financial system remain outside the regulatory perimeter.** Financial leasing companies, factoring companies and credit card issuers are not subject to the regulation and supervision by the superintendencies.
- **Relatedly, the assessment of systemic risk is hampered by the lack of consolidated supervision.** There is no regulatory framework with which to regulate, supervise and possibly sanction financial groups, notably holding companies. A draft law that would create consolidated supervision has been held back by congress for a number of years.
- **There is a lack of human resources, and thus technical expertise, at the superintendencies and CONASSIF in order to measure and address systemic risks.** CONASSIF does not have full-time staff to identify, evaluate, and mitigate systemic risk. In addition, the superintendencies, due to their mostly microprudential

the four Superintendencies can exchange information needed for their prudential supervisory function (Article 171 LMV).

focus, do not regularly assign such tasks to their staff. Finally, there is neither a clear mandate to address systemic risk nor an adequate methodology.

- **Conflicts of interest may arise due to the presence of some directors at CONASSIF who represent institutions that are supervised by the superintendencies.** In Board discussions about pension issues the presence of a representative from *Banco Popular* and a representative of the pension schemes managed by the Ministry of Labor may give rise to a conflict of interest with their supervisors (SUGEF and SUPEN).

B. Considerations in Designing an Effective Macprudential Policy Framework

16. **This section analyses the relevant dimensions for an institutional framework⁷ to determine the alternative institutional arrangements that could be considered for Costa Rica under the current legal framework.**

- **Degree of integration between central bank and financial regulatory and supervisory functions.** The BCCR is focused on monetary and exchange rate policies, while the superintendencies are largely independent of the BCCR with respect to prudential supervision—they are “below” the BCCR only with respect to administrative issues (e.g., CONASSIF and the superintendencies are subject to BCCR directives in connection with budgetary issues, and to the extent that CONASSIF, whose directors are largely appointed by the BCCR, designates and appoints the heads of the superintendencies). Furthermore, the central bank has limited access to the information available to the banking supervisor (as discussed before, this information may be shared only upon the specific request of at least five members of the BCCR Board and subject to legal considerations on restrictions to adequate share information). In sum, there is *de facto* no integration between the central bank and prudential functions.
- **Ownership of macroprudential policy**
 - The BCCR has an explicit financial stability objective (as noted in paragraph 7) and powers over certain instruments that have been used for macroprudential purposes e.g., reserve requirements (paragraph 8). This broad objective and powers could serve as the legal foundation for the BCCR’s role in macroprudential policy. Many central banks without supervisory powers have built on their financial stability mandate to identify, analyze, and monitor systemic risks, including by publishing financial stability reports. However,

⁷ This analysis draws on previous work at the IMF, notably by Nier, E.W, J. Osinski, L.I. Jácome, and P. Madrid (2011).

the BCCR has so far not developed this function.

- SUGEF’s statutory objectives include discharging its supervisory functions *with the purpose of providing stability, soundness and efficiency of the function of the financial system*. However, the sections of the law that relate to SUGEF’s role in identifying and correcting “financial instability” are purely of a microprudential nature (i.e., directed at individual financial institutions that are unstable) and supervision is neither fully risk-based (as noted by the latest FSAP Update and recent MCM TA⁸) nor has a systemic focus (e.g., SUGEF is only beginning to elaborate on stress tests based on macro scenarios).
 - CVM has a macroprudential mandate; nevertheless, its objective is limited to identifying systemic risks and proposing a set of macroprudential measures to CONASSIF. In this regard, it is important to point out that the LMV does not endow the CONASSIF expressly with a macroprudential or stability mandate, objective or function.
 - Overall, ownership of macroprudential policies appears shared by multiple agencies, although the responsibilities at the BCCR and SUGEF with respect to this mandate are not well developed.
- **The role of the government--i.e., the Ministry of Finance (MOF)—in macroprudential policy.** The MoH should coordinate fiscal policy with the monetary, exchange and credit policy implemented by the BCCR. In Costa Rica, while the MOF is a member of both the Board of Directors of the BCCR and CONASSIF, the MOF has played a rather passive role in terms of policy discussions and policy development (although the ministry is the conduit by which the BCCR and superintendencies submit their draft legislation to congress).
 - **Institutional separation of policy decisions from control over policy instruments.** There is an important degree of separation in Costa Rica, as more than one entity is involved in the decision making and the implementation of regulatory measures. Furthermore, there appears to be some disagreement between the CONASSIF and some superintendencies as to the degree to which CONASSIF can “direct” the

⁸ Since 2009 MCM has provided TA on risk-based supervision as a follow-up to the 2008 FSAP recommendation. The project has involved identifying the various types of risk to which Costa Rican banks are exposed, and then conducting pilot studies on individual banks to assess and quantify their exposures to these risks. The project is being extended to 2013 in order to fully implement risk-based supervision. Once the pilots are complete, SUGEF will need to seek changes in the regulations to alter the classification of the banks, and also legal changes to alter the structure and level of penalties. The IDB is providing help on the initial legal changes.

superintendencies to draft regulation without the superintendencies first proposing such regulation.

- **The existence of a separate body coordinating across policies to address systemic risk.** In Costa Rica, the legal framework does not establish a coordinating body among all relevant policy makers. The CVM is an informal committee, based on an agreement among CONASSIF’s directors and composed only of directors of the CONASSIF, who are to present proposals to CONASSIF in connection with macroprudential measures to mitigate systemic risks. Importantly, the CVM involves the BCCR and the superintendencies at the technical level and voluntary basis only and does not include a representative from the Ministry of Finance.

17. **In summary, under the current legal framework, Costa Rica’s arrangements most closely resembles model 5, where lack of sufficient sharing information and relevant expertise are important weaknesses.** Stylized model 5 is characterized by institutional separation between the central bank and supervisory agencies, and thus by multi-agency ownership of macroprudential policies (with no separation between policy decisions and control over instruments), but with a separate entity to coordinate policies (Table 1).⁹ A potential strength of these models is that each agency remains focused on their main objective, which reduces overlaps, creates strong institutional cultures in each policy field, and facilitates the creation of separate accountability for monetary and prudential policy, while there is less risk that any one institution may become dominant and remains unchallenged in its identification of risks or assessment of the appropriate policy response. However, strong institutional separation between central bank and microprudential supervisor may impede the flow of microprudential data and risk assessments that may otherwise enrich the analysis of network risks and macro-financial linkages conducted by the central bank, and the focus of each institution on its particular objectives also reduces the chance of successfully bringing together relevant expertise and may also increase the risk of “gap”—risks remaining undetected or unaddressed (e.g., the growth of shadow-banking). A coordinating committee can address many of the weaknesses with sharing of information, spotting gaps and building consensus, but may not be able to fully address deep-rooted accountability and incentive problems. In particular, where multiple agencies are responsible for mitigating systemic risk a “commons” problem can arise whereby there is under-investment in macroprudential policies, delays, or sub-optimal policy mix.

18. **Costa Rica’s arrangements suffer from some additional weaknesses in several of the dimensions that hamper coordination on macroprudential policies.** The differences (additional weaknesses) between Costa Rica’s arrangement and the stylized model 5 arise from (i) weak mandates (i.e., financial stability objectives that have not been fully

⁹ Ibid, Table 1 and pp. 25-26.

operationalized or, in the case of CONASSIF are not explicit in the law) that weaken the ownership of macroprudential policies; (ii) the fragmentation in the institutional set-up for financial sector oversight, such that there is a some separation between policy decisions and control over instruments (i.e., CONASSIF approves regulation but appears limited in ensuring the rules are effectively implemented) whereas in stylized model 5 there is no separation; and (iii) the structure of CVM, the coordinating committee, with the BCCR represented at only the technical level and without any participation by the MOF.

Table 1. Costa Rica: Current Model

Features of the Model	Model 5
Degree of integration between central bank and financial regulatory and supervisory functions	No
Ownership of macroprudential policy	Multiple agencies
The role of the government (treasury) in macroprudential policy	Passive
Institutional separation of policy decisions from control over policy instruments	No
The existence of a separate body coordinating across policies to address systemic risk	Yes

C. Proposal for the Reform of the Institutional Framework

19. **The existing framework could be strengthened in the short-term, although some weaknesses would need to be addressed by legal reforms over the medium-term.**¹⁰ The authorities should consider taking measures in the short-term to (a) strengthen the identification, analysis, and monitoring of systemic risk; and (b) strengthen the effective coordination across policies aiming to address systemic risk under the existing legal framework. The mission team has identified three principal measures to be considered for implementation in the short-run. However, even with these measures there would still be weaknesses that may stymie the timely and effective implementation of macroprudential policies. In this respect, in the medium-term, two options requiring legal changes could improve the timely and effective use of macroprudential measures by creating stronger mandates and strengthening powers, while also strengthening accountability mechanisms.

Short-term measure 1—A Financial Stability Unit (FSU) within the BCCR

20. **In the short run, the BCCR could create a financial stability unit to identify, analyze and monitor systemic risks.** The BCCR could establish a FSU that identifies the necessary information and provides the Board of the BCCR (where the MOF is represented)

¹⁰ The authorities requested short-term measures that would not require legal reforms. The latter may be considered in the medium-term given the possible delays in passing legislation.

with the relevant outputs (analyses and proposed measures). Such outputs could also be presented by the President of the BCCR at the Board meetings of CONASSIF.

21. **It is important to consider that the BCCR is already empowered to discharge functions in macroprudential policy.** It has a broad secondary objective in safeguarding the stability of financial intermediation, coordination of macro policies, and already enjoys legal powers for some tools that are useful for macroprudential use (e.g., setting limits on credit expansion and FX positions). More generally, the BCCR Board can establish general regulations for financial intermediaries to comply with in terms of monetary, credit and exchange rate policies. In this regard, the FSU could usefully be responsible for preparing the publication of a financial stability report and could provide assistance for the coordination of the new institutional arrangement (e.g., secretariat functions) given the BCCR's resources and capacity.

22. **The new unit would strengthen the BCCR's capacity to identify and monitor systemic risk.** Experiences from other central banks suggest that the BCCR will first need to formulate a working definition of financial stability.¹¹ It will also need to develop its approach to analyzing financial stability, which generally consists of three steps: (1) an assessment of the overall current stability of the system; (2) identification of the main sources of vulnerabilities and risks and their probabilities; and (3) an evaluation of the ability of the financial system to absorb shocks.¹² In practice, institutions safeguarding financial stability identify a set of indicators (or risks and risk bearing capacity), which reflect the particular institutional set-up of the financial system (i.e., the relative importance of institutions and markets). They also tend to run stress tests. The BCCR could analyze the financial stability reports of other countries that have similarly structured financial systems to see what methodologies, notably analytical instruments and indicators, may be useful for use in Costa Rica.

23. **In the medium term the financial stability unit could be elevated to a department or directorate.** Assuming that the new unit carries out its tasks successfully, it may soon require additional resources and backing within the BCCR. This could be achieved by turning the unit into a full-fledged department or directorate, as other central banks have done, recognizing the growing importance of financial stability issues for a central bank. There is no specific pattern for how central banks organize their financial stability function, although many central banks that are not integrated with banking supervision tend to have a department (e.g., Australia, China, European Central Bank, Korea, Japan, Norway, and United Kingdom (pre-2011)).¹³ The BCCR could also consult with other central banks in the

¹¹ These are usually stated in the financial stability reports. See Table 3 in Cihák, Martin (2006).

¹² See Spicka, Peter (2007).

¹³ Ibid, Annex.

region that are not integrated with banking supervision (e.g., Chile, Mexico) and have set up such units.

Short-term measure 2—A cross-institutional technical group

24. **Establishing a joint technical group composed of all relevant authorities would help clarify macroprudential functions.** The technical group would be composed of all the relevant authorities (BCCR, CONASSIF, and the four superintendencies) and would be responsible for coordinating the efforts among the authorities in macroprudential issues. The authorities would need to agree on the work plan consistent with the legal competencies, expertise, and resources of each institution. This would be an important step in entrusting representatives of each authority with concrete macroprudential functions.

25. **Roles and responsibilities should be assigned carefully, while developing the trust that is necessary for effective cooperation.** Roles and responsibilities would need to be assigned based on each authority's legal competencies, expertise, and resources. For example, while the BCCR could take the lead in identifying risk scenarios and developing measures and indicators of systemic risk, in particular cyclical risks, CONASSIF and the four superintendencies could take the lead in the analyzing SIFIs and cross-sector solvency and liquidity risks.¹⁴ In this context, CONASSIF could take the lead in ensuring the regulatory framework across banking, insurance, and pensions is consistent and precludes regulatory arbitrage. Considering the autonomy of the aforementioned authorities and that the tools should only be used by the relevant entity that will be held accountable for its actions, the technical group would have to present the issues before the very authority that has the corresponding legal mandate and powers. It is important to establish that the interests and points of view of the different authorities will be taken into account, analyzed and discussed.

26. **In addition, the technical group should be empowered to establish separate working subgroups.** These subgroups would be tasked with specific analytical assignments and could be led by staff of the different institutions. It could also invite to its discussions other public or private parties that can provide experience or data. This will grant flexibility to the group in carrying out its functions.

27. **Due to the technical essence of the proposed institutional arrangement, no governance issues arise.** Considerations such as presidency, session planning, voting procedures etc. are not relevant for its operation. Rather cooperation will be built on the development of trust and an interest in a common goal. Nevertheless, establishing a secretariat to follow up on the matters of the technical group would be useful.¹⁵ Considering the degree of autonomy of the various institutions involved, this type of institutional arrangement could be implemented via a Memorandum of Understanding among the relevant

¹⁴ In this regard, CONASSIF and the superintendencies are urged to develop guidelines on bottom-up stress tests, as well as move to implement Basel II, pillar 2, which would provide the regulatory framework needed to incorporate stress tests into the supervisory process.

¹⁵ Given the resources of BCCR, it seems natural that the BCCR should serve as secretariat.

authorities (with prior agreement of the Board of the BCCR and CONASSIF) or by invitation from one institution to the others.

Short-term measure 3—A high-level coordinating committee/council

28. **The authorities could adopt an institutional model—i.e., a high-level coordinating council—similar to the one found in Australia.** Australia’s arrangement also corresponds to Model 5 of the IMF’s categorization of institutional arrangements, including a well-developed coordinating committee. In Australia, the central bank, prudential supervisor, market supervisor, and the Treasury all contribute to containing systemic risks based on their respective financial stability responsibilities. To facilitate cooperation and coordination on financial regulation and stability issues, they formed the Council of Financial Regulators, and agreed on an MOU focused on monitoring threats to financial stability and managing financial distress. The central bank chairs the Council and is tasked with the primary responsibility for maintaining overall financial system stability in times of stress through the use of its liquidity provision and payments system powers, and it also takes the lead in systemic risk monitoring and assessments. The other members of the council take the lead in their respective areas of responsibility—the prudential supervisor in microprudential supervision (but with a systemic perspective), the markets supervisor in financial services/conduct of business, and the Treasury on related legal and fiscal actions (e.g., authorizing deposit and financial compensation, and proposing legal reforms to promote a sound financial system).

29. **The CVM’s membership could be modified so that it becomes the high-level coordinating committee for macroprudential policies.** This would require including the BCCR president, four superintendents, and the Minister of Finance in the committee, and reducing the CONASSIF representatives to one of the independent directors. As in Australia, the central bank should chair the committee and an MOU should establish the roles and responsibilities of each member. The roles can echo, at a higher level, those established for the technical group. However, as noted in paragraph 17, coordinating committees may fully overcome deep-rooted accountability and incentive problems that remain a concern for Model 5. Stronger accountability measures, such as publication of recommendations that are subject to a formal “comply or explain” mechanism, are needed.

Medium-term measures

30. **Over the medium-term, the authorities could consider stronger measures to address existing weaknesses as well as alternative models that may allow for more timely and effective use of macroprudential tools but would require a change in the law.** In particular, these would call for:

- Creating strong mandate and strengthening powers; and
- Assuring appropriate accountability.

Box 1. Australia's Arrangements for Systemic Risk Mitigation

Australia's resilience during the recent global financial crisis points to some lessons with regard to effective arrangements for monitoring and managing systemic risks. The Australian experience is a useful example of a case where a nominally microprudential regulator has taken macroprudential (i.e., financial stability/systemic risk) considerations into account, in concert with the efforts of the central bank, as the agency responsible for systemic financial stability (including systemic risk monitoring). Sound policy decisions have been supported by:

- **Clear roles and responsibilities:** In Australia, the prudential supervisor takes systemic risks into account. A specific task in this regard is the review of prudential regulation to ensure financial stability. There is also one authority (the central bank) with an explicit mandate for monitoring and analyzing – and where necessary publicizing – systemic risk. This mandate and ensuing advocacy is not be specified in legislation, but responsibilities are clearly identified in MOUs and policy statements.
- **Supportive coordination arrangements.** Australian authorities do not make a sharp distinction between microprudential and macroprudential approaches, but recognize that systemic risks raises coordination challenges. In particular, their macroprudential analysis and policy response requires coordination between different groups, defined both by institution and professional skills. The central bank's macroprudential team concerned with overall macro-financial stability strives to ensure its analysis is credible and makes the case that something is a problem, so that the supervisor will be convinced to take action. Coordination arrangements on information exchange support this.
- **Regular engagement with the market.** The prudential regulator regularly engages with banks on regulatory issues and the central banks formally visits major institutions every six months.

Two reform options are suggested.

Option 1

31. **Even without changing the existing institutional model, legal reforms to strengthen CONASSIF, consolidated supervision, and information sharing could substantially strengthen the institutional framework for macroprudential policies.** In particular, amendments to the respective laws could (i) reduce the separation between CONASSIF policy decisions and control over prudential instruments; (ii) strengthen CONASSIF's and the superintendencies' operational independence; (iii) introduce consolidated supervision powers while widening the regulatory perimeter; (iv) clarify the BCCR's right to receive prudential information in order to better support systemic risk monitoring; and (v) strengthen accountability arrangements for macroprudential policies. The first three recommendations have already been noted by past FSAPs as key to strengthening microprudential supervision, which is an important building block for effective systemic risk mitigation. To strengthen accountability, one possibility could be to vest a macroprudential authority with binding powers over specific and well-defined macroprudential instruments that are carved out of the policy domain of a separate regulatory authority.

Option 2

32. **A more radical option would be to move to a type of “twin peaks” model that includes a macroprudential policy committee (with powers to direct).** This would entail shifting to Model 2 versus the aforementioned Model 5—for a comparison see Table 1. In this model prudential supervision is functionally integrated into the BCCR, while maintaining conduct of business and consumer protection functions in separate agencies (i.e., “twin peaks” supervision), and macroprudential policy decisions are supported by a separate Macroprudential Policy Committee (MPC). Separation of the macroprudential and monetary policy committees limits the reputational risk to the central bank’s monetary policy and also allows for the participation of the MOF without undermining the independence of the monetary policy function. However, to ensure effective coordination with monetary policy, it is important to have sufficient overlap in the membership of the macroprudential and monetary policy committees. Furthermore, to ensure sufficient understanding about securities market risks, representation of the securities market regulator on the macroprudential committee is also recommended. Also, given the concentration of functions at one institution, an unambiguous mandate and strong accountability arrangements are very important to check and balance the concentration of power.

Table 2. Costa Rica: Medium-Term Options Requiring Legal Changes.

Features of the model	Model 5 (Enhanced)	Model 2
Degree of integration between central bank and financial regulatory and supervisory functions	None	Partial
Ownership of macroprudential policy	Multiple agencies (BCCR/CONASSIF/Superintendencies)	BCCR Macroprudential Committee
The role of the government (treasury) in macroprudential policy	Passive	Passive
Institutional separation of policy decisions from control over policy instruments	Yes	No
The existence of a separate body coordinating across policies to address systemic risk	Yes	No
Examples	Australia	United Kingdom

33. **The authorities would have to carefully consider the costs and benefits of such a far-reaching reform.** Given the importance of financial groups in Costa Rica, a unified

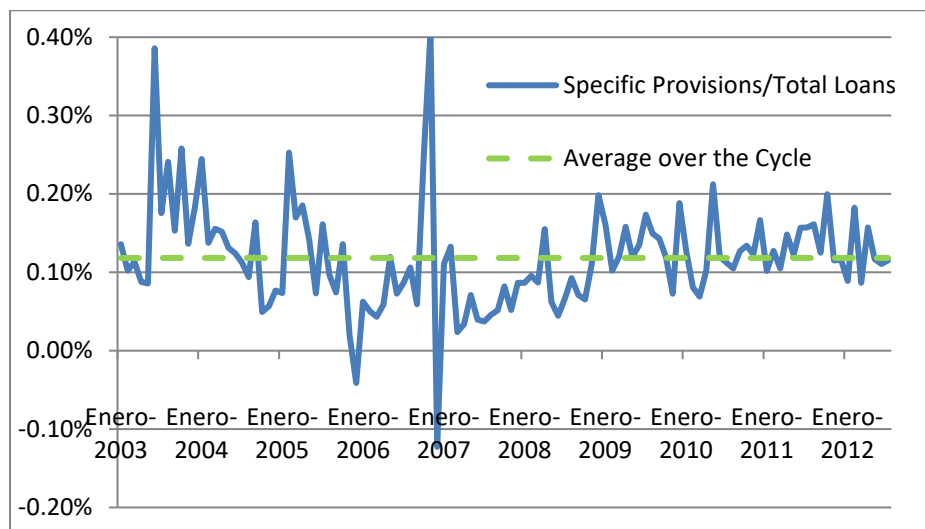
prudential supervisor would strongly enhance consolidated supervision, and integrating this prudential supervisor into the central bank, besides facilitating information exchange, may strengthen the incentives for the BCCR to use its available tools to limit macroeconomic imbalances that give rise to systemic risks for the financial sector. The limited empirical research on institutional structures that may support financial stability (lower incidence of banking crisis and their costs, as well as better management of capital inflows related to banking stress) would also suggest that a more integrated macroprudential authority would be beneficial (see IMF WP/11/250, Box 4). However, major institutional changes often tend to have high transition costs, and it is not clear that the eventual benefits outweigh these costs.

III. INTRODUCING DYNAMIC LOAN-LOSS PROVISIONING

34. **Loan-loss provisions of the Costa Rican banking sector exhibit a volatile and procyclical pattern.** As Figure 1 shows, after high loan-losses in 2003–05, specific provisions as a share of total loans were below the average during 2003–12 (with the exception of two outliers at end-2006), and with the onset of the global financial crisis tended to be above the average up until now. Importantly, in Costa Rica there is no generic provision on performing loans, which in conjunction with generous rules for valuing collateral is seen to have contributed to a rather low level of loan-loss reserves.

Figure 1. Costa Rica: Specific Provisioning Cost over the Cycle, 2003–12

(In percent of total loans)



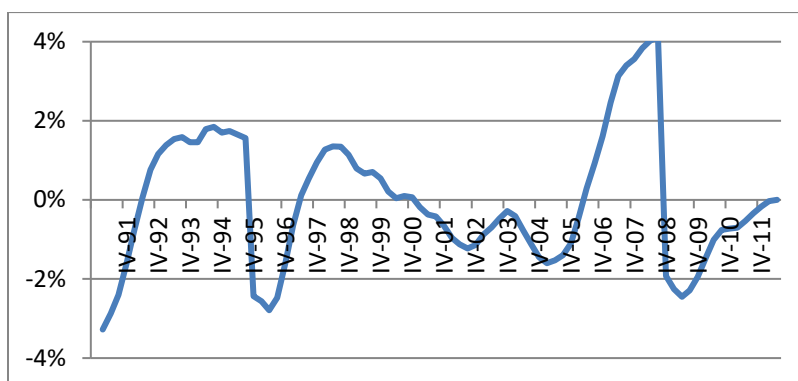
35. **For these reasons, the authorities have expressed their interest in introducing dynamic provisioning (DP).** SUGEF officials have studied the main dynamic provisioning schemes. They approve of the automaticity of the Spanish system that requires only knowledge of the average provision rate over the cycle, while also appreciating the

macroprudential dimension of the Peruvian system that lets banks build/draw down dynamic provisions when GDP growth is higher/lower than certain thresholds.

36. **In the following, two simulations are presented.** In the first simulation, a generic provision is introduced and made variable during a downturn phase. In the second one, the Spanish provisioning system is emulated with a uniform and a bank-specific dynamic provisioning rate. Both sets show that a certain degree of smoothing of provisioning costs can be achieved.¹⁶

37. **In the first simulation, a generic provision is introduced and rendered dynamic.** That is, banks are allowed to offset a certain share of their above-average specific provisioning (SP) costs by running down the generic provisions when a certain macroeconomic condition is fulfilled. In this case, the output gap is chosen as the macroprudential access rule. The historical series shows the output gap to have been negative during 2008Q3–2012Q1 (Figure 2) so that during this period of 3½ years banks are allowed to tap into the generic reserve to cover rising loan-losses. In the example, both the generic provision and the rate of coverage are varied.

Figure 2. Costa Rica: Output Gap in Costa Rica, 1991–2012



Source: BCCR.

38. **Table 2 shows the coverage in terms of years until depletion of the generic provision according to different rates of the generic provision and of the coverage of SP.** In the prototypical case of a generic provision of 1 percent of loans with full offset of SP, the dynamic fund would be depleted on average after 1 year, with the maximum and minimum periods of any bank fund being 2.9 and 0.3 years, respectively. By comparison, a generic

¹⁶ For a detailed description of these dynamic provisioning models see Wezel, T., J.A. Chan-Lau and F. Columba (2012) “Dynamic Loan-loss Provisioning: Simulations on Effectiveness and Guide to Implementation,” IMF Working Paper 12/110.

reserve of 2 percent with an offset of half of SP would last $2\frac{1}{2}$ years on average, with the minimum period rising to about $1\frac{1}{4}$ years.

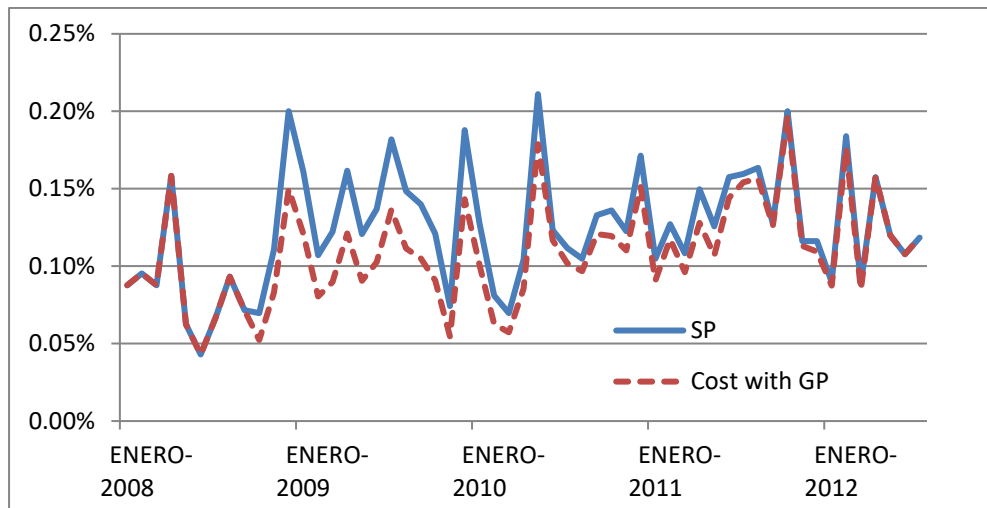
Table 3. Costa Rica: Years to Depletion of Dynamic Generic Provision

Offset%	Average		Maximum		Minimum	
	GP 1.0%	GP 2.0%	GP 1.0%	GP 2.0%	GP 1.0%	GP 2.0%
100%	1.0	1.7	2.9	3.5	0.3	0.5
75%	1.2	2.1	3.5	3.5	0.4	0.7
50%	1.7	2.6	3.5	3.5	0.5	1.2
25%	2.6	3.3	3.5	3.5	1.2	2.3

39. **A comparison of provisioning costs with and without the generic reserve illustrates the cost offset that is possible during the access phase.** Figure 2 displays the provisioning costs as a share of total loans during 2008Q1–2012Q2. During the access phase the effective provisioning cost is lower than without the dynamic generic reserve, although no cost smoothing as under the Spanish system occurs.

Figure 3. Costa Rica: Lower Provisioning Cost under Dynamic Generic Provision

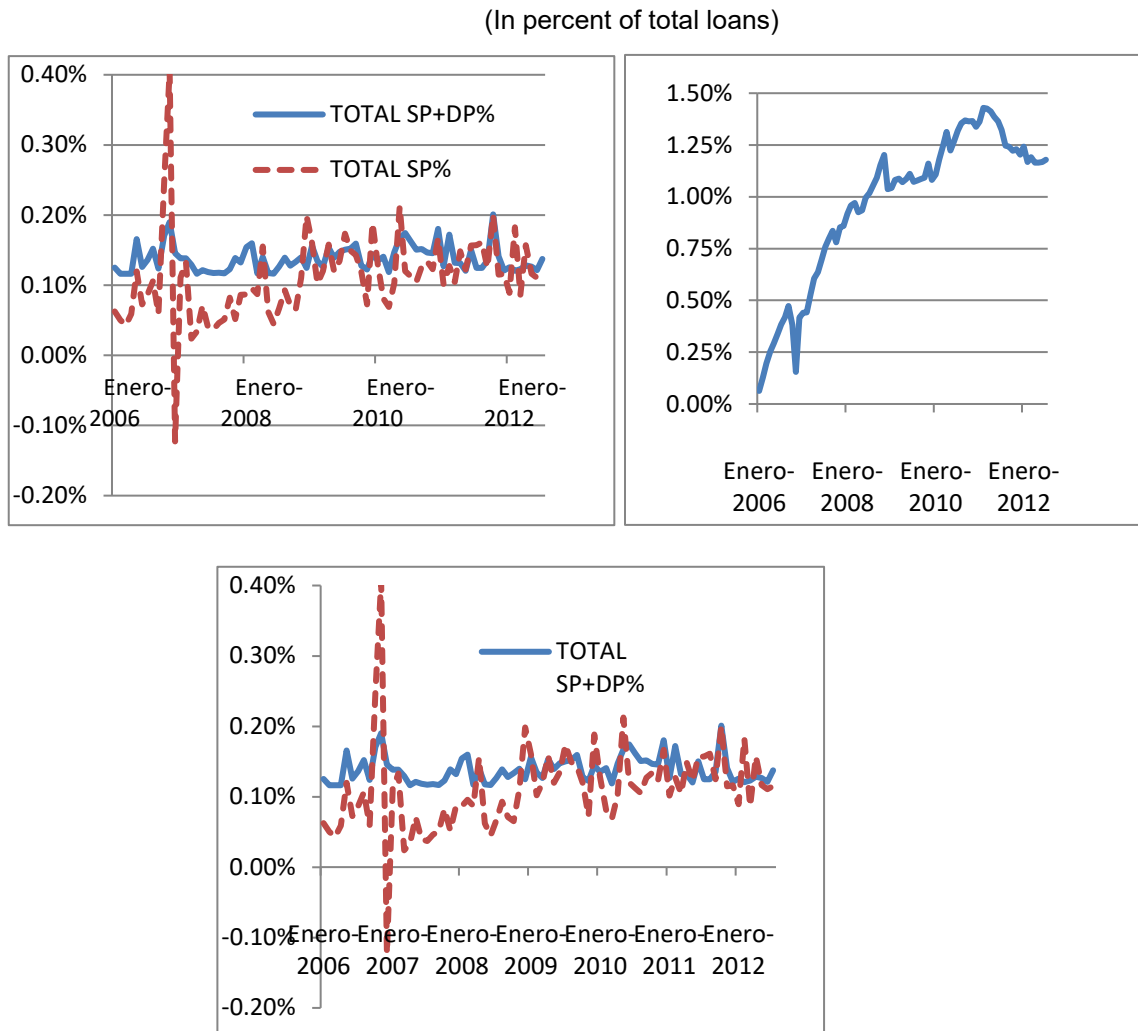
(In percent of total loans)



40. **The second set of simulations emulates dynamic provisioning under the Spanish system.** Under the Spanish system, banks are required to constitute a dynamic provision according to the difference between the average provision over the cycle and the actual provision in the current period. In the simulation for the Costa Rican banking sector the cycle was assumed to have begun in January 2006, in line with the output gap turning positive (Figure 2). Accordingly, banks were assumed to begin constituting DP in that month based on the average provisioning rate during January 2006 and July 2012. For the loan portfolio of

the aggregated banking system this rate overall amounted to 0.116 percent of total loans per month (1.4 percent per year).¹⁷

Figure 4. Costa Rica: Provisioning Cost under the Spanish System/Evolution of DP Fund



41. **Cost smoothing under the hypothetical Spanish system is shown to be substantial, but not perfect.** Figure 4 shows that some provisioning spikes during 2009–12 can be offset by tapping into the reserve funds. However, even the smoothed series of total provisioning costs exhibits some volatility that is owed to the fact that some banks prematurely or at least temporarily exhaust their buffers. Any deviation from a smooth line points to some imperfection in the buildup or use of the dynamic buffer, often owing to

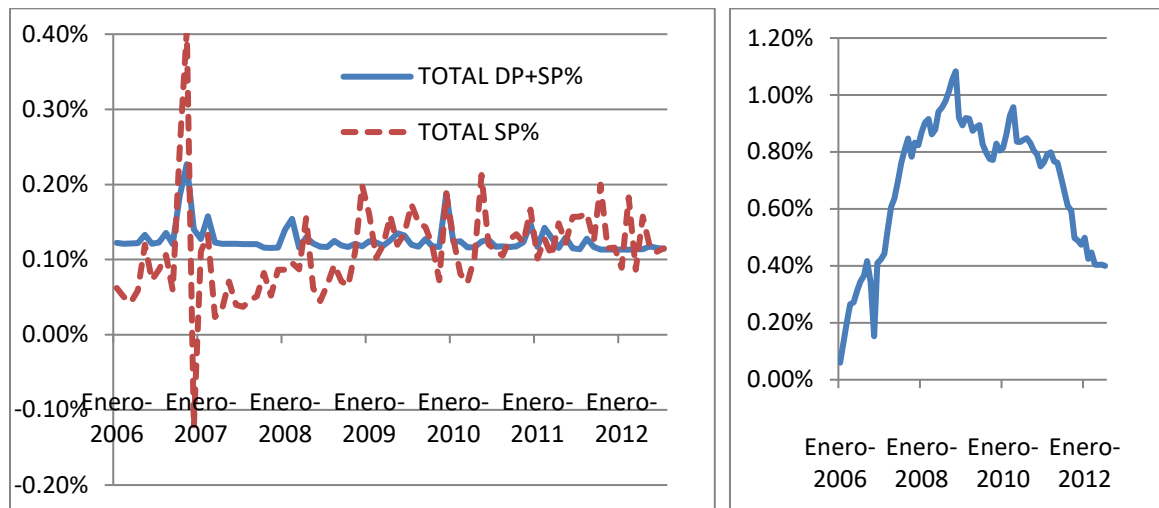
¹⁷ The simulation omits two features of the actual Spanish system: the so-called alpha factor that prescribes an additional generic provision based on the default rate in a cyclically-neutral year, and the upper limit to the DP fund of 125 percent of latent loss.

idiosyncracies in loan-losses, such as high losses early into the cycle or strong spikes later in the cycle. Importantly, the Spanish system does not assign a rate that is specific to the risk profile of each bank's portfolio but rather imposes a uniform rate for each class of loan exposures across banks. This type of averaging implies that banks with higher-than-average risk will not be able to build an adequate buffer and exhaust their DP funds early, while safer banks end up with a substantial residual cushion at the end of the simulation period.

42. **To mitigate the impact of imposing a uniform rate across heterogeneous banks, another simulation under the Spanish system assumed bank-specific DP rates.** Each bank was thus assigned a near-optimal rate given the pattern of specific provisioning over the 2006-12 cycle. The results in Figure 5 illustrate that the cost smoothing is superior and that the residual DP buffer at the system level is only one third of that under the system with a uniform DP rate (0.4 versus 1.2 percent).

Figure 5. Costa Rica: Provisioning Cost under Modified Spanish System/Evolution of DP Fund

(In percent of total loans)



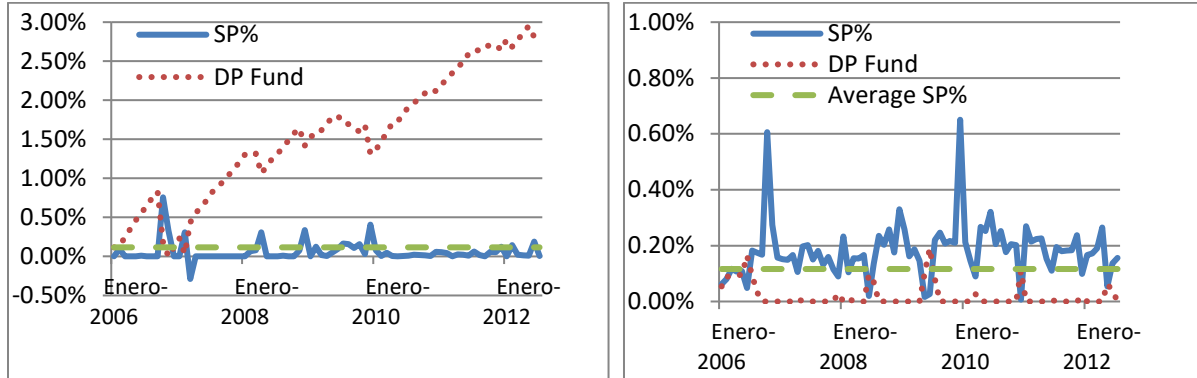
43. **However, not even this modified system works perfectly for all banks because the Spanish system lacks an explicit macroprudential access rule.** If banks have a-cyclical loan-loss or provisioning patterns, with losses occurring early into the cycle, they will not enjoy the maximum coverage when entering into the downturn phase. This is because the Spanish system allows to offset any higher-than-average provisioning flow, regardless of whether this occurs during a downturn or in the upswing. In this sense, the Spanish system lacks an explicit macroprudential access rule that the Peruvian system or the above system of a dynamic generic reserve feature. In other words, the advantage of the simplicity of the accumulation rules comes at the expense of a possibly suboptimal coverage during a downturn phase.

44. **Figure 6 shows the suboptimal outcomes for two Costa Rican banks under the actual Spanish system with its uniform DP rate.** The first bank is less risky than the system average and therefore builds a unnecessarily high buffer. The reverse occurs in the case of the second bank whose risky loan portfolio generates above-average provision expenses throughout that impedes the accumulation of an adequate buffer and thus leads to a low buffer and recurring depletion of the DP fund.

45. **In sum, dynamic provisioning is likely to have a net benefit for the Costa Rican banking system.** The simulations show that under optimal conditions both systems of dynamic provisions investigated here can smooth provisioning costs over the cycle and provide a welcome buffer to offset rising loan impairment costs in a downturn. To be sure, the simulations do not address the issue of overprovisioning that can occur under the Spanish system, and for the system of a dynamic generic reserve the access rule would clearly need to be calibrated more carefully. Such optimization would be carried out at a later stage of the TA project once the authorities decide to introduce dynamic provisioning and select one of the DP models.

Figure 6. Costa Rica: Suboptimal Outcomes for two Costa Rican Banks (#2 and #15)

(In percent of total loans)



IV. INTEGRATING THE FINANCIAL SECTOR INTO THE BCCR PROJECTION MODEL

46. **A proper analysis of suitable macroprudential policies for Costa Rica's economy requires building modeling tools for the transmission mechanism.** Macroprudential policies are used to complement monetary policies in mitigating shocks. Furthermore, macroprudential policies have strong effects on key macroeconomic variables due to the procyclicality of the banking system. Therefore, to evaluate issues related to financial stability and systemic risk, any macroeconomic model should recognize explicitly the role of the financial sector and its effects on the business cycle.

47. **The BCCR has developed modeling tools for policy analysis that will need to properly account for the credit cycle and prudential regulation.** The BCCR has made significant efforts to understand the main transmission mechanism in Costa Rica's economy by estimating a quarterly model for monetary policy evaluation and, with the support of IMF technical assistance, by building a DSGE model for evaluation of shocks over the business cycle. While the quarterly model has not introduced the role of financial sector in its structure, the DSGE model introduces some financial frictions (such as the financial accelerator mechanism) in the transmission mechanism of the monetary policy. Nevertheless, none of these modeling tools incorporate the effect of prudential regulation over the business cycle.

48. **The basic quarterly model is based on a standard New Keynesian open small economy model, estimated for the 1992–2012 period.** The model consists of the following four fundamental equations:

- *A Phillips Curve*, who characterizes the dynamic relationship between inflation, output gap and inflation expectations. The expectation process is determined by inflation target announced by the Central Bank, imported inflation and an indicator of misleads between actual and inflation target in the past.
- *An IS Curve*, where the output gap is determined by real interest rate misalignment from the long run natural interest rate, as well as movements in real exchange rate and in the main commercial partners' output gap;
- *A forward-looking interest rate policy rule* whereby the BCCR adjusts the policy interest rate as a response to the deviation of projected inflation from its target rate, also considering a smoothing parameter associated with the lagged real interest rate.
- An equation that determines the *short run dynamics of the nominal exchange rate* obtained from risk-adjusted uncovered interest rate parity expressed in real terms.

49. **The model's transmission mechanisms are mainly associated with the aggregate demand channel, and indirectly with the expectations channel through the exchange rate.** However, the role of consumption and investment are not explicitly modeled. That could omit key effects of banking variables, such as loan growth, non-performing loans, and leverage constraints, on investment and household consumption. In reality, financial variables have direct effects on aggregate demand through loan interest rate and credit availability, as well through the exchange rate in a framework of a partial dollarized economy. Moreover, movements in the borrowers' default probability and in the banking sector balance sheet would help capture the macroeconomic effect of prudential bank regulation. Although the exchange rate is considered a key variable in the quarterly model for the expectative channel, the effect of the exchange rate on bank balance sheets (such as exchange rate-induced credit risk, which could increase non-performing loans and affect

bank solvency) are not explicitly taken into account either. The lack of financial variables in the quarterly models could underestimate the amplification effects of the financial sector over the business cycle.

50. **The New Keynesian DSGE model developed with IMF technical assistance is also based on a traditional monetary transmission mechanism with a financial accelerator.** Like in the case of the BCCR's quarterly model, the DSGE model focuses on the transmission mechanism of the policy interest rate and external shocks. Households and firms make optimal decisions on consumption, investment, financial asset holdings and capital accumulation. An inter-temporal IS equation is derived, as well a New Keynesian Phillips curve, with Calvo pricing. The model is closed with a Taylor rule for monetary policy and an interest rate parity equation to add shocks in the main commercial partner economies. The model considers a financial accelerator mechanism similar to the Bernanke-Gertler-Gilchrist (1999) model,¹⁸ through the influence of the external premium on the firms' cost of capital. The model also assumes perfect competition in the banking system and no prudential regulation rules and constraints.

51. **During a follow-up mission, the two models would need to be adjusted to introduce financial frictions and prudential regulation effects.** The quarterly model would be expanded to include bank balance sheet variables and credit channel mechanisms. Introducing the effect of the policy rate on the loan interest rate, as well banks' decisions to adjust loan supply are important elements to reinforce the aggregate demand channel. That explicit modeling strategy will also help to evaluate prudential regulation tools with macroeconomic effects such as changes in the provisioning system and the banking system's minimum capital requirement.

52. **The DSGE model would be improved by introducing frictions through collateral constraints.** Leverage effects of housing prices on loan collateral could be easily introduced to evaluate macroprudential policies such as loan-to-value constraints. Changes in real estate prices could amplify credit cycle effects on the business cycle, as in the Kiyotaki-Moore (1997) model.¹⁹ By introducing this additional restriction, real estate booms can be captured, and proper macroprudential tools to cope with them could also be evaluated.

53. **Macroprudential effects could also be captured by introducing the role of prudential regulation in the DSGE model.** Banks' balance sheet could be modeled by introducing an optimizing bank that attracts deposits (held by households) and supplies loans to the real sector. By explicitly modeling the bank balance sheet, additional constraints such as a Basel rule can easily be introduced. Bank capital accumulation would be the result of the interaction between borrower probability of default and bank interest income and expense. It

¹⁸ Bernanke, Gertler and Gilchrist (1999).

¹⁹ Kiyotaki and Moore (1997).

could be compared with minimum requirements in order to evaluate the effect of bank solvency and leverage. The impact of dynamic provisioning could also be evaluated by introducing a provisioning rule that depends on a macroprudential rule such as the output gap.

54. **In the medium term, the new models should be integrated with SUGEF's stress testing model.** Stress testing models usually are based on the assumption of key macroeconomic variables that affect financial variables. For instance, interest and exchange rate movements could affect loan supply. BCCR's models could provide the inputs for the SUGEF's stress testing models and in turn also could benefit from the results on bank solvency, loan growth and loan interest rates. By including all these financial variables, the macro models should introduce feedback effects on GDP growth, inflation and other key variables. This would facilitate both the right choice of macroprudential tools in Costa Rica and the coordination among supervisors and the central bank in the implementation of macroprudential policy.

V. OTHER TOPICS

55. **By necessity, issues related to the modeling of systemic risk, the identification of SIFIs and the development of macroprudential tools are deferred to follow-up missions.** At the request of the BCCR, the mission team has initially focused on measures to improve the institutional framework for macroprudential policy and, to a lesser extent, on a preliminary assessment of the merits of introducing dynamic provisioning and integrating a financial sector into the BCCR's macroeconomic projection model

56. **Work on modeling systemic risk and developing macroprudential tools will be carried out once the preconditions for such analytical work have been put in place.** This refers to the creation of a unit for financial stability at the BCCR and, possibly, other coordinating arrangements to execute such technical work across institutions. Beyond the organizational framework, adequately-skilled staff will need to be assigned to this technical unit and other working groups in order for the advice of the mission team to be incorporated into the regular analytical work of the relevant institutions. The mission team will develop a work plan for addressing these additional topics, once these organizational changes have been implemented.

VI. SUMMARY AND NEXT STEPS

57. **This technical assistance mission has focused on overcoming the perceived obstacles to a smoother coordination mechanism for macroprudential policy.** The analyses and corresponding recommendations are based on in-depth discussions that the mission team had with current and former high-ranking officials of the BCCR, CONASSIF, and the four superintendencies. The main recommendations for improving the institutional framework for macroprudential policy and concomitant measures to bolster financial stability can be summarized as follows:

- In the short term, the BCCR should create a financial stability unit with sufficient human and budgetary resources to analyze systemic risks. Also, the coordination between BCCR, CONASSIF and the superintendencies should be further strengthened, including by more formal agreements for the sharing of information needed to assess systemic risks as well as by jointly evaluating options for macroprudential policies.
- In the medium term, CONASSIF's mandate and functions could be refocused while endowing it with more operational powers. In this context, efforts to strengthen consolidated supervision and widen the regulatory perimeter should be redoubled. At the same time, accountability in executing measures to safeguard financial stability needs to be bolstered. Finally, the flow of information should be improved, notably by clarifying the BCCR's right to receive prudential information in order to better support systemic risk monitoring and mitigation.

58. **The mission has also carried out analytical work on dynamic provisioning and modeling the financial sector within the BCCR's macroeconomic projection model.** To supplement these endeavors, the mission team held a workshop on the characteristics of the models it has considered. In dynamic provisioning, the analytical work shows that Costa Rican banks could benefit from a countercyclical system in the sense of smoothing provisioning costs over the cycle and creating an additional reserve to deal with downturn conditions. As regards modeling the financial sector within the BCCR projection model, the mission delivered an initial diagnostic of the necessary building blocks to be incorporated and explained to BCCR the importance of modeling financial frictions for more realistic macroeconomic projections. The mission recommends that the authorities contemplate the options presented and decide on a preferred course of action.

59. **The mission team proposes to return to Costa Rica when the organizational prerequisites for anchoring macroprudential policies have been put in place.** That is, the BCCR should establish an FSU and the relevant authorities should identify the members of the technical group. The FSU could provide assistance (e.g., secretariat functions) for coordinating the work of the technical group that will analyze and propose measures, as necessary, to the authorities. This requirement is deemed crucial to ensure that the mission's subsequent work on modeling systemic risk, identifying SIFIs, and evaluating macroprudential tools takes hold within the BCCR and other relevant entities. In this context it will be important for the authorities to provide adequate human and financial resources to support the upcoming modeling effort which is likely to be complex and time-consuming. To ensure a smooth implementation of the mission's recommendations, ongoing training of staff assigned to the new financial stability unit and other technical/working groups would be instrumental.

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