



WP/11/245

IMF Working Paper

Improving the Monetary Policy Frameworks in Central America

*Stephanie Medina Cas, Alejandro Carrión-Menéndez,
Florencia Frantischek*

IMF Working Paper

Western Hemisphere Department

Improving the Monetary Policy Frameworks in Central America

**Prepared by Stephanie Medina Cas, Alejandro Carrión-Menéndez,
Florenca Frantischek¹**

Authorized for distribution by Marco Piñón

October 2011

Abstract

This Working Paper should not be reported as representing the views of the IMF.

The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

Several Central American (CADR) countries with independent monetary policies are strengthening their monetary frameworks and some have implemented or are moving towards inflation targeting (IT) regimes. Strengthening the monetary policy frameworks of CADR is key to improving the effectiveness of monetary policy. The paper reviews the literature on the reforms needed for strengthening the monetary policy frameworks, and examines the experiences of IT countries, Chile, Peru, and Uruguay to help distill lessons for CADR. It also constructs an index to measure the relative strength of the monetary policy framework of CADR countries.

JEL Classification Numbers: E50, E52, E58

Keywords: monetary policy, inflation targeting, Central America, Latin America

Authors' E-Mail Addresses: smedinacas@imf.org, acarrionmenendez@imf.org,
ffrantischek@imf.org

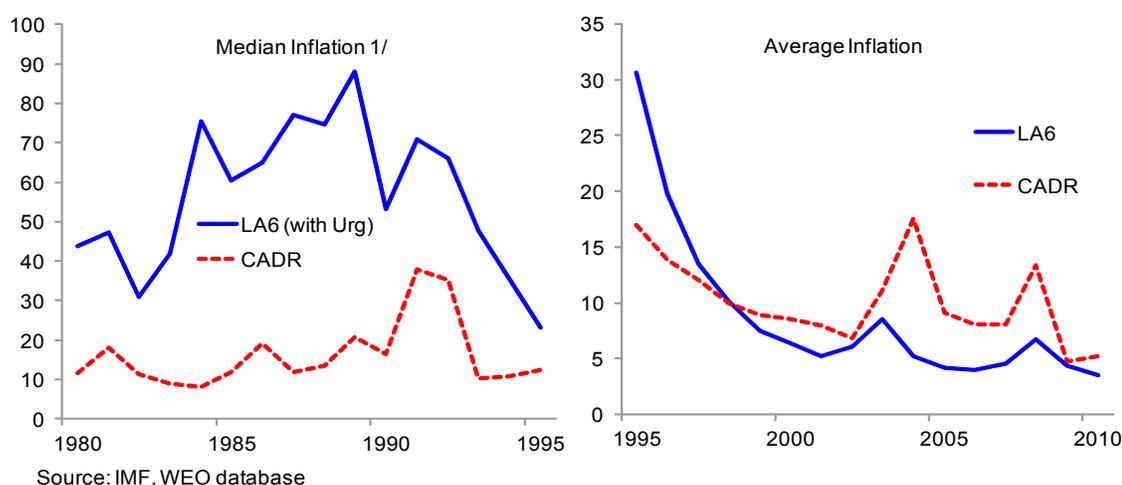
¹ The authors would like to thank Alejandro López-Mejía, Marco Piñón, and Miguel Savastano for helpful comments and suggestions. They would also like to thank Geoffrey Bannister, Issouf Samake, and Yulia Ustyugova for their inputs on the monetary frameworks in CADR.

Contents	Page
I. Introduction	3
II. Key Elements of A Strong Monetary Policy Framework: Review of the literature	4
III. Monetary Frameworks in Selected South American Countries and CADR.....	6
A. Monetary Frameworks and Reforms in Chile, Peru, and Uruguay.....	7
B. The Monetary Policy Frameworks in CADR.....	10
C. Index to Measure the Strength of Monetary Policy Frameworks in CADR	14
IV. Conclusions and Policy Recommendations.....	15
References.....	37
 Tables	
1. Central Bank Prots and Losses in Chile, Peru, and Uruguay	8
2. Index: Strength of Monetary Policy Framework	15
 Figures	
1. Inflation in Central America (CADR) and Selected Latin American Countries	3
2. Average Inflation in CADR and LA5.....	6
3. Index of Strength of Monetary Policy Framework.....	14
 Appendixes	
I. Key Elements of a Strong Monetary Policy Framework: The Case of Chile, Peru and Uruguay.....	17
II. The Monetary Policy Framework in CADR Countries.....	26
III. Strength of Monetary Policy Index.....	35

I. INTRODUCTION

In the 1980s and 1990s, CADR countries (except Nicaragua), had lower inflation rates than other Latin American countries (Figure 1).² However, despite efforts to strengthen the institutional frameworks for formulating and executing monetary policy since the mid-1990s, inflation in CADR has been above inflation in other Latin American countries since the early 2000s, and more volatile and vulnerable to external shocks. CADR central banks have tended to raise interest rates less than what was required to tame inflation pressures and some have also cared about the stability of the exchange rate, thus blurring their true policy objective vis-à-vis price stability (Jácome and Parrado, 2007a). The recent weaker inflation performance of CADR countries is a symptom of their need to strengthen their monetary policy frameworks and resolve structural problems. They have lagged behind other Latin American countries, in particular the LA6 countries, who have undertaken significant monetary reforms and adopted IT regimes along with flexible exchange rates.³

Figure 1. Inflation in Central America (CADR) and Selected Latin American Countries



1/ For comparability reasons, the median inflation was used for the period 1980-95, given the hyperinflation episodes experienced by Brazil, Nicaragua and Peru.

This paper seeks to identify key reforms needed to strengthen monetary frameworks in CADR countries to reduce inflation and achieve price stability. In order to do so, it builds upon existing studies on how monetary policy is conducted in Central America (Jácome and Parrado, 2007a, 2007b, and Medina Cas, Carrión-Menéndez, and Frantischek, 2011), reviews

² The discussion excludes Panama and El Salvador, both of which officially use the U.S. dollar as their legal tender. The CADR countries with some degree of monetary policy independence are Costa Rica, the Dominican Republic, Guatemala, Honduras (which, recently re-established a crawling band), and Nicaragua (that has a crawling peg regime).

³ The LA6 countries are Brazil, Chile, Colombia, Mexico, Peru, and Uruguay.

the literature on enhancing monetary policy frameworks, and examines the reform experiences of Chile, Peru, and Uruguay to help distil lessons for CADR. These three South American countries, which have adopted IT (or, in the case of Uruguay, transitioning towards IT), have built strong monetary policy frameworks and share some of the economic characteristics of CADR (e.g., openness, vulnerability to external shocks, some degree of financial dollarization—except Chile—and, in the case of Uruguay, similar economic size and a external current account dominated by commodity imports).

The paper also constructs an index to measure the strength of the monetary policy frameworks in each CADR country. While there are significant differences among CADR countries, all of them still lag far behind the benchmark country (Chile). In particular, the study reveals that central banks in the region would benefit from ensuring the continued absence of fiscal dominance, enhancing central bank independence, and increasing exchange rate flexibility to reinforce the primacy of price stability as the main monetary policy objective. Moreover, measures to improve the effectiveness of the policy instrument, such as enhancing liquidity management, would also be important as they aid in the development of the interest-rate transmission mechanism.

The paper has four sections. Section II examines the literature on the conditions and benefits of strengthening monetary policy frameworks, many of which are similar to those associated with IT. Section III describes the monetary reforms undertaken in Chile, Peru and Uruguay in their process towards implementing IT and characterizes the monetary frameworks in CADR. In doing so, it develops taxonomy of key elements that support a strong monetary policy framework, which is used to build an index to measure the strength of monetary policy in CADR. Section IV concludes with the main policy recommendations for CADR.

II. KEY ELEMENTS OF A STRONG MONETARY POLICY FRAMEWORK: REVIEW OF THE LITERATURE

A well functioning monetary framework in the context of a flexible exchange rate regime is essential to maintain macroeconomic stability and offset the effects of shocks on the real economy. However, in many economies, the channels through which monetary policy is transmitted to prices and output face several constraints, including insufficient exchange rate flexibility, financial dollarization, fiscal dominance, low financial intermediation, and fragile central bank financial positions.

Many of the conditions to strengthen independent monetary policy frameworks and consequently the effectiveness of monetary policy are similar to those required for successful implementation of IT. These conditions encompass several elements, the most important of which is that price stability should be the main objective of monetary policy. Under an IT framework, the central bank has an explicit quantitative target or target ranges for the inflation rate, and the inflation forecast over some time horizon is the de-facto intermediate target of policy (Batini, Kuttner, and Laxton, 2005). In response to a wide-range of new information, the central bank changes monetary conditions to bring expected inflation in line over time with the inflation target. IT is accompanied by a high level of central bank transparency in its communications of the monetary policy strategy and implementation, and by a high amount of accountability on the attainment of its objective (Rogers, 2010).

In the process of strengthening the monetary frameworks, recent studies conclude that there are three basic preconditions that should be in place when adopting IT: priority of the inflation target, absence of fiscal dominance, and central bank instrument independence.⁴ Other conditions can be developed after the adoption of IT, including institutional changes and increasing technical capacity of the central bank (Batini et al., 2005; Freedman and Otker-Robe, 2010). Interestingly, it has also been found that highly financially dollarized economies can successfully implement IT, while giving some role to exchange rate smoothing as long as intervention does not aim at targeting a certain level or trend for the real or nominal exchange rate (Leiderman, Maino, and Parrado, 2006).

There is evidence that the introduction of IT—and the associated increase in exchange rate flexibility—in emerging markets has contributed to a reduction of the exchange-rate pass-through to inflation (Coulibaly and Kempf, 2010). This is important as a low pass-through increases the effectiveness of the exchange rate as an indirect channel of transmission to output and prices because changes in the exchange rate would have a greater impact on net exports. Some degree of exchange rate smoothing can be beneficial for financially vulnerable emerging markets, due to the perverse impact that exchange rate movements have on activity and financial variables (Rogers, Restrepo, and Garcia, 2009). However, the primary objective of monetary policy needs to be the inflation target, with exchange rate smoothing playing a clearly secondary role (Goldstein, 2002). In particular, it is key to avoid the appearance of multiple objectives as insufficient clarity on the relative importance of each of these objectives could leave the system without a clear anchor and undermine its credibility (Mishkin and Savastano, 2000)

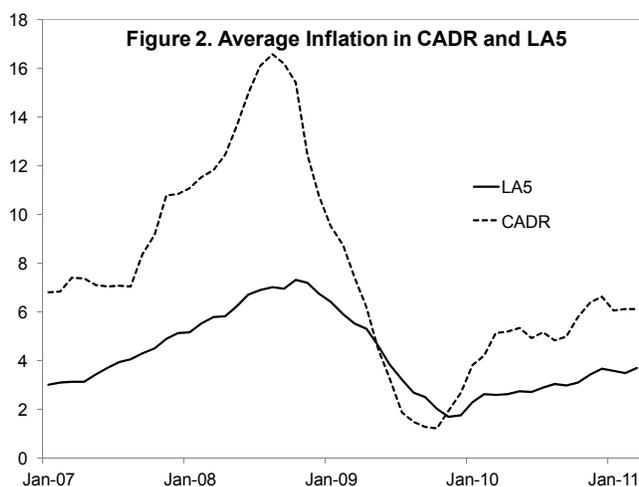
The main benefits of IT stem from its ability to lower inflation, while reducing adverse effects on output. IT has been shown to be associated with lower inflation, lower inflation expectations, and lower inflation volatility relative to non-IT countries (Batini, et al. 2005). At the same time, there has not been adverse impact on output, or on the volatility of interest rates, exchange rates, and international reserves. IT has also helped better anchor inflation expectations, allowed exchange rates to become efficient shock absorbers, helped boost communication and transparency of the central bank, and resulted in institutional reforms, thus reinforcing further the IT framework (Freedman and Otker Robe, 2009)

The existence of supply shocks argue for implementing a flexible monetary policy framework that takes into account changes in the output gap while enhancing communication. In the short run, monetary policy should be allowed to respond to the output gap (i.e., a Taylor rule) so that part of the temporary shock can be reflected in an increase in the price level (Frankel, 2010). Placing greater importance on core CPI, which excludes volatile food and fuel components, is also useful in the case of temporary shocks. As done in many IT countries, monetary flexibility can be increased by setting a target range for inflation, rather than a point target. Clear communication by the central bank that these

⁴ Instrument independence gives the central bank the authority to utilize or set its monetary policy instruments to achieve its inflation target.

shocks are considered temporary is also crucial to anchoring long-term inflation expectations and maintaining credibility.

IT has shown to be an effective monetary framework, even in the face of adverse supply shocks. This can be illustrated using the experience of the major IT central banks in the Latin America (Brazil, Chile, Colombia, Mexico, and Peru—the LA5 countries) during the food and fuel price shock in 2008. During this episode, on average, these countries had significantly lower inflation volatility and better contained inflationary pressures than other Latin American countries with less flexible exchange rate regimes (Figure 2; Canales-Kriljenko, et al. 2010). Once it was clear that the supply shock was not temporary and was beginning to affect core inflation, the LA5 countries tightened monetary policy with a short lag and allowed their nominal exchange rates to appreciate. They communicated to the markets that a rise in interest rates was necessary as inflation expectations had begun to divert from the inflation band, and reiterated their commitment to price stability.



III. MONETARY FRAMEWORKS IN SELECTED SOUTH AMERICAN COUNTRIES AND CADR

This section reviews the monetary reforms undertaken in Chile, Peru and Uruguay and the existing monetary frameworks of CADR. It also develops an index to measure the strength of the monetary policy frameworks in CADR. Understanding the experience of the three IT South American countries is useful for identifying key reforms to strengthen the monetary frameworks in CADR. The monetary policy frameworks of these countries provide useful benchmarks for CADR as they share key characteristics: they have become increasingly open, are subject to external shocks, and the financial systems are partially dollarized (with the exception of Chile) and generally dominated by banks. In addition, Uruguay has an economic size similar to some of the largest economies in CADR and is exposed to similar terms of trade shocks given that it is a commodity importing country.

A. Monetary Frameworks and Reforms in Chile, Peru, and Uruguay

The following review of the experience of the countries chosen is based on a taxonomy of characteristics of strong monetary policy frameworks derived from the literature, namely: price stability as the main monetary objective (and the associated exchange rate flexibility), absence of fiscal dominance, central bank instrument independence, the effectiveness of the policy instrument, and other elements (e.g., deep and sound financial markets, good technical capacity at the central bank for forecasting inflation, and accountability and transparency of the central bank). A detailed examination of the monetary frameworks in Chile, Peru and Uruguay is presented in Annex I.

Priority of the inflation target (and the associated exchange rate flexibility)

The main monetary policy objective in Chile, Peru, and Uruguay is price stability. Chile started with an informal IT framework in the early 1990s and adopted a fully-fledged IT in 1999. After a successful disinflation process, Peru adopted IT in 2002, while Uruguay has been transitioning to a fully-fledged IT since late 2007. A few years before adopting IT, in the new legislation of the Central Bank of Chile (BCC) and of the Central Reserve Bank of Peru (BCRP), monetary and currency stability became their main policy objective, which was interpreted by these central banks as preserving price stability. In the case of the Central Bank of Uruguay (BCU), the legislation was modified one year after it started transitioning to IT in 2007, and price stability became the main objective.

All countries adopted floating exchange rate regimes, which allowed central banks to focus on price stability as the dominant target. In 1999, Chile adopted a floating exchange regime, after an eight-year period under an exchange rate band regime. Foreign exchange interventions have been infrequent and, when carried out, the central bank has announced the reason, size, and time span for the intervention. In 1991, Peru unified the foreign exchange market and allowed the exchange rate to float. Foreign exchange intervention in Peru has been important and frequent, justified by the presence of high financial dollarization, which has led the BCRP to manage exchange rate volatility to avoid potential balance sheet effects. In 2002, Uruguay abandoned a crawling band, and since then has a floating exchange rate regime but with frequent foreign exchange interventions to smooth out exchange rate fluctuations.

Absence of fiscal dominance

All the central banks are forbidden to grant credit to the public sector, and fiscal positions improved considerably in Chile since the 1990s and in Peru since the 2000s, while Uruguay has significantly narrowed its overall deficit since 2003. Chile and Peru reformed central bank legislation at least ten years before adopting IT, while Uruguay modified it one year after transitioning to IT. In the new legislations, the central bank is forbidden to extend credit to the public sector. In the case of Peru and Uruguay, the central bank can purchase government securities in secondary markets but within strict and well established limits. The BCC can only lend to the government in case of a national emergency. A few years prior to the adoption of IT, the policy frameworks in the three countries, and the fiscal framework in particular, strengthened significantly. Chile and Peru were running fiscal surpluses up to the

global crisis in 2008, while Uruguay was running small fiscal deficits. After implementing countercyclical fiscal policies to face the crisis, fiscal positions deteriorated in 2009, but it is expected that they will strengthen in the near future.

Central bank independence

The three countries have a high degree of central bank independence. Prior to the latest changes in central bank legislations, these countries did not have *de jure* instrument independence. After the changes, the BCC and the BCRP achieved greater independence and became more shielded from political interference, with board members nominated by the President of the country and ratified by Congress from a pool of qualified and independent professionals. In contrast with the BCU and BCRP, the independence of the BCC is further protected as the terms of the governor and the board members are staggered and do not coincide with electoral calendars. While the BCU does not have *de jure* independence, in practice it has had a high degree of autonomy comparable to the BCC and BCRP.

The BCRP's balance sheet has strengthened, though weaknesses still remain in those of the BCU and BCC. All three central banks experienced high operational deficits in the 1980's (Table 1). In the case of the BCU, the government recapitalized the central bank in October 2010, with the issuance of US\$2.4 billion worth of government inflation-indexed bonds. In the case of the BCC, under the Fiscal Responsibility Law (2006) annual government transfers were made in 2006-2008 equivalent to 0.5 percent of GDP every year, but its net worth continues to be negative.⁵ However, this has not been an impediment to the conduct monetary policy, as the BCC has been able to issue debt instruments due to strong market demand supported by the strength of fiscal policy and the growing pool of institutional investors, particularly private pension funds. The BCRP balance sheet position strengthened in 1994 after the redefinition of its role, with increased autonomy provided in its new charter, and the recapitalization from the central government.

Table 1. Central Bank Profits and Losses in Chile, Peru, and Uruguay
(In percent of GDP)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
BCC	-3.1	-3.2	-1.8	-2.2	-1.1	-1.2	-1.0	-0.9	-0.6	-0.7	-1.1	-1.1	-1.1	-1.4	-1.0	-1.2	-0.7	-0.6	-2.1	-0.2	-0.5	2.9	-0.2
BCRP	-5.4	-3.2	-0.4	-1.1	-0.4	-0.2	-0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.2	0.1	0.0	0.0	0.2	0.2	-0.1	0.0
BCU	-2.8	-3.1	-3.4	-3.6	-2.2	-1.6	-0.8	-0.6	-0.6	-0.5	-0.5	-0.5	-0.2	-0.3	-0.3	-0.3	-0.3	-0.9	-0.3	-0.1	0.1	-0.2	0.0

Source: IMF Staff Reports.

⁵ This was the result of the large costs of the banking crisis of the 1982 borne by the central bank and a large accumulation of international reserves during the nineties under the exchange rate band regime, prior to floating.

The effectiveness of the policy instrument

The three countries have developed over time market-supportive monetary operational frameworks and have gradually gained more control over their policy instrument, which is a short-term interest rate. Following a transition period, they have adopted a daily interbank rate as an operational target, relying primarily on market-based monetary instruments to manage liquidity. During the transition, they fostered interbank and money market operations and refined the scope of monetary instruments, including by improving auctions, extending maturities of central bank securities, creating credit and deposits standing facilities, and introducing repos and reverse repos operations. Regarding the operational target, the BCC moved from a real to a nominal interbank rate, while the BCRP moved from a quantitative target (banks' reserves at the central bank) to a daily interbank rate. The BCU moved from the monetary base toward a market interbank rate as its operational target. The BCRP and BCU still rely on reserve requirements to help managing liquidity conditions.

The three central banks have developed a good understanding of the transmission mechanism of monetary policy. In the case of the BCC, monetary policy is well anchored on a free floating exchange rate regime with financial dollarization posing no constraints to policy decisions. In the cases of Peru and Uruguay, the interest-rate transmission mechanism is hindered to a certain extent by low exchange rate flexibility and financial dollarization. However, the BCRP and BCU have implemented measures to discourage dollarization, such as imposing limits on net open foreign-currency positions of banks, higher capital requirements for foreign-currency loans, higher reserve and liquidity requirements on foreign-currency deposits, and tighter loan classification for foreign-currency loans.

Other elements for strengthening the monetary policy framework

All three countries have strengthened their financial systems and are promoting the development of domestic financial markets. While bank concentration may still weaken interest-rate transmission in Peru and Uruguay, the regulatory and prudential frameworks have been upgraded in all three countries and financial sector indicators have improved significantly.⁶ Regarding the development of their financial systems, the Chilean pension reform of the early 1980s contributed to the development of the financial system by allowing a stable accumulation of large funds to be invested in private sector assets. In addition, the Chilean financial system is characterized by relatively long bond maturities, and an equity market that is large by Emerging Market standards. Peru's financial market has grown rapidly in recent years, facilitated by increasingly capitalized pension and mutual funds, sound public finances, and higher demand for Peruvian assets by foreign investors. Moreover, the Peruvian authorities have been establishing a yield curve in local currency as a reference point for the corporate sector. The Uruguayan financial system is dominated by banks, while the equity market and the domestic corporate bond market are small and

⁶ In Chile and Uruguay, reforms were implemented drawing lessons from the costly banking crises experienced in the early 1980s and early 2000s, respectively.

relatively illiquid. The BCU has focused on the development of the fixed-rate local currency securities markets by lengthening the maturity structure of central bank securities.

The BCC and the BCRP have good technical capacity for inflation forecasting. They have developed models for inflation and macroeconomic forecasting and policy analysis, including time series models for short-term forecasts, structural macroeconomic models for quarterly forecasting, and dynamic stochastic general equilibrium (DSGE) models. The BCU is advancing in model forecasting but needs to develop further technical capacity in this area.

The accountability and transparency of the central bank is high in all three countries. All publish quarterly monetary or inflation reports, financial stability reports, annual audited financial statements, and detailed monetary policy decisions. The governor of the BBC reports to Congress four times a year, once to full Congress and three times to the Finance Committee; the governor of the BCRP report to Congress once a year. The BCC is particularly transparent regarding board policy decisions, as it publishes monetary decisions, the minutes of the policy meetings, and voting patterns shortly after the meetings. All the central banks publish comprehensive economic analyses and extensive monetary and economic data on their websites.

B. The Monetary Policy Frameworks in CADR

The channels through which monetary policy is transmitted to prices and output face several constraints in CADR. The interest-rate transmission mechanism, for example, is weakened by factors such as limited exchange rate flexibility, the level of dollarization, and the development of the financial sector (Medina Cas, Carrión-Menéndez, and Frantischek, 2011). In addition, the reputation and credibility of central banks needs to be further strengthened to achieve better inflation results (Jácome and Parrado, 2007a, 2007b). Reducing these constraints should enhance the effectiveness of their monetary policy frameworks. The status and progress achieved by CADR in these areas is described below following the taxonomy used in the previous subsection. A detailed examination of the monetary frameworks for the individual CADR countries is presented in Annex II.

Priority of the inflation target (and the associated move towards exchange rate flexibility)

All the central banks in CADR have price stability as an objective, but it is not the only objective of monetary policy. The Dominican Republic is the only country that has price stability as the fundamental objective of monetary policy in its central bank legislation; Guatemala has it as a secondary objective (the main objective is creating conditions for the orderly development of the economy). In the legislation of Costa Rica, Honduras, and Nicaragua, the objective of monetary policy is to preserve the stability of the currency. In practice, Guatemala, Costa Rica, and the Dominican Republic have inflation target ranges, but the two latter countries give high importance to the exchange rate as a nominal anchor and the Central Bank of Guatemala (Banguat) has an intervention rule to limit exchange rate volatility.

In fact, all CADR countries place importance on exchange rate stability, thus blurring to different extents the priority attached to the inflation target or price stability. Only Guatemala has adopted a floating exchange rate regime, but exchange rate flexibility has generally been low, partly due to the intervention rule. Costa Rica has a crawling band regime, while the Dominican Republic has a de jure managed float, but de facto the exchange rate continues to be a key anchor as is tightly managed with discretionary intervention. Honduras has recently re-introduced a crawling band regime and Nicaragua has a crawling peg.

Absence of fiscal dominance

The conditions in CADR in this area are generally positive. All central banks by law are not allowed to provide credit to the government, though Costa Rica, Honduras, and Nicaragua permit some short-term lending. In particular, the Central Bank of Costa Rica (BCCR) is allowed to buy treasury bills, the Central Bank of Nicaragua (BCN) can provide short-term advances by discounting treasury bills, and the Central Bank of Honduras (BCH) can only provide short-term credit to the government. However, in two recent occasions the BCH short-term credit to the government was converted into long-term credit. In the cases of the Banguat and the Central Bank of the Dominican Republic (BCRD), they can only lend to the government under emergency circumstances.

As a result of the global economic crisis, the fiscal positions deteriorated in all CADR countries since 2008. In particular, fiscal deficit have worsened, often as a result of increases in permanent spending. Thus, while nonfinancial public sector debt remains relatively low in the Dominican Republic, Guatemala, and Honduras (at around 25–30 percent of GDP), and is relatively higher in Costa Rica and Nicaragua (at about 35 and 80 percent of GDP respectively), strict adherence to fiscal consolidation targets is essential to reduce deficits and debt-to GDP ratios to regain fiscal space used during the crisis.

Central bank independence

Following changes in legislations in the 1990's and in the first-half of the 2000's, the central banks of CADR were empowered with de jure instrument independence. However, political autonomy needs to be strengthened further to enhance institutional independence in the following aspects: the process to appoint/dismiss central bank governors, the terms of the board linked to political cycles, and the composition of the board.⁷ For example, in the Dominican Republic, Guatemala, Honduras, and Nicaragua, the President of the country appoints the governors of the central bank; and in Costa Rica, the governing council chaired by the President does. Furthermore, in Costa Rica and Nicaragua, the President has considerable influence when it comes to firing the governor or board members. Except in Honduras, all the central bank board include the minister of finance, and, in the case of the Banguat, board members also include members of Congress, the banking association, and non-bank private representatives. In Costa Rica and the Dominican Republic, the mandate of

⁷ Jácome and Parrado (2007a) also describe in detail the central bank reforms undertaken in CADR since the 1990s and measure central bank independence in the region.

the governor or board members overlaps with that of the President of the country (though in the Dominican Republic a new draft law is expected to be passed in 2011 that would lengthen the mandates of board members and will not overlap with the presidential period). In Honduras, the mandate of the governor and one board member overlaps with the presidential mandate, while in Nicaragua the term of only one board member overlaps with the presidential mandate.

Operational autonomy is undermined in all countries by weaknesses in central banks' balance sheets. The CADR central banks have been running operational deficits and have negative or insufficient capital under accounting frameworks that comply with International Financial Reporting Standards (IFRS). In some cases, the losses have been the result of recent quasi-fiscal activities (Nicaragua), of quasi-fiscal activities in the 1980s and 1990s (Costa Rica and Honduras), or a legacy of a banking sector crisis (the Dominican Republic in 2003–05).⁸ Since 2003, Guatemala has a mechanism to absorb central bank losses, but losses prior to that year have not been recognized. In Nicaragua and Honduras, the government is mandated to absorb losses but this has not been very effective in strengthening the capital position of the central banks.⁹ For example, in Honduras the government has provided nonmarketable securities with long-term maturities at very low yields. In the Dominican Republic, a recapitalization plan is being implemented, but in Costa Rica a central bank recapitalization plan has been in Congress since 2007 without being approved.

The effectiveness of the policy instrument

All central banks in CADR rely on rules-based instruments and open market-type operations, with only partial reliance on money market operations.¹⁰ This reflects the relatively undeveloped situation of the money market. All central banks in the region use reserve requirements, standing facilities, and auctions of central bank securities to regulate liquidity. With the exception of Nicaragua, all central banks have an explicit policy rate, but the signaling of the policy stance is hindered by a structural liquidity surplus and shallow interbank markets. The Banguat has strengthened the monetary operation framework in recent years and introduced an overnight rate with a one-day instrument as its operational target in June 2011. The BCRD and BCCR use lending and deposit facilities at the central

⁸ In Costa Rica, losses arose from commercial bank rescue operations, and in Honduras, losses were a result of credit and rescue operations of the financial and non financial public sector.

⁹ A recently approved law for the BCN (2010) mandates a government recapitalization of the BCN during 2011.

¹⁰ Rules-based instruments are based on the regulatory power of the central bank and include reserve requirements and standing facilities. Money market operations include: *Open market-type operations, which are market-based monetary operations through auction techniques regulated by the central bank.* They involve (i) lending/borrowing with underlying assets as collateral, (ii) primary market issuance of central bank or government securities for monetary policy purposes, and (iii) acceptance of fixed-term deposits. *Open market operations* (OMOs) are market-based monetary operations and conducted by the central bank as one of the participants in the money market. OMOs involve (i) buying/selling assets outright in the secondary market, and (ii) buying/selling assets under a repurchase agreement in the repo market or through foreign exchange swaps. See Laurens (2005).

bank to establish a corridor for short-term interest rates. The BCRD is gradually narrowing the interest-rate corridor, and the BCCR also plans to do so.

The transmission mechanism from the policy rate to lending rates in CADR is weakened by low exchange rate flexibility and financial dollarization (Medina Cas, et al., 2011). In Costa Rica, the Dominican Republic, and Guatemala there is an understanding of how the transmission mechanism works, but limited exchange rate flexibility hinders the interest-rate transmission mechanism. CADR countries have not seen a substantial decline in deposit dollarization ratios since 2008, though their levels are below those in countries with stronger monetary policy frameworks such as Peru and Uruguay. In addition, most of the central banks need to improve liquidity forecasting to more effectively tackle the excess liquidity held by banks, which is another factor hindering the transmission mechanism.

Other elements for strengthening the monetary policy framework

Looking ahead, it will be important to continue strengthening and developing further the financial systems in CAPDR. While banks play a dominant role in the financial markets of the region and concentration remains high (particularly in Nicaragua and the Dominican Republic), the banking sector is adequately capitalized and liquid, and non-performing loans are low (2–4 percent range). Costa Rica and Guatemala tend to have the most advanced supervisory practices, though the region still lags with respect to best international practices in some areas.¹¹ Regarding the development of financial systems, capital markets are dominated by government bonds or central bank paper, and given that secondary markets are limited or non-existent, countries do not have benchmark yield curves for government bonds, or other curves that reflect market conditions. Interbank markets are also shallow and the foreign exchange market is often dominated by the central bank. Costa Rica is the only country with a significant private securities market, though it still remains small.

Central banks in the region need to develop methodologies for inflation forecasting. Within the region, the BCCR, the BCRD, and the Banguat have stronger technical capacity to model inflation (including a portfolio of inflation forecasting models and macroeconomic forecasting models) but further technical improvements are still needed. The BCN and BCH have only basic models for inflation forecasting. Since they are more advanced towards IT, the central banks for the Dominican Republic, Costa Rica, and Guatemala conduct monthly surveys of inflation expectations. The Banguat and BCCR publish the surveys on their website, while the BCRD shares it with the survey participants.

The central banks in CADR generally have appropriate accountability and transparency frameworks. They report annually to their respective Congresses and publish annual audited financial statements and decisions regarding monetary policy actions. The Banguat is one of the most transparent central banks in the region as it publishes the minutes of its monetary policy decisions and its governor appears twice a year before Congress. The CADR central banks publish several monetary policy reports during the year, except for Honduras which

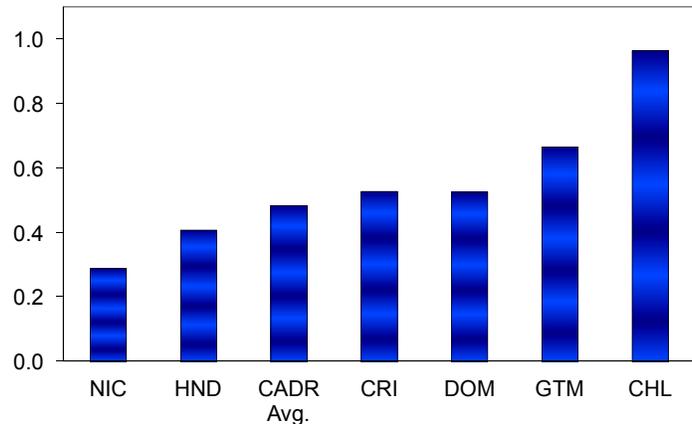
¹¹ For more information on developments in financial supervision in the region, see Delgado and Meza (2011).

only publishes one, and they publish extensive monetary and economic data on their websites.

C. Index to Measure the Strength of Monetary Policy Frameworks in CADR

In order to map concisely the relative strengths of the monetary frameworks of each CADR country, it is possible to build an index that captures the key elements of a strong monetary policy framework. Following the taxonomy used in the previous subsections, the index is constructed based on five main criteria: (i) the central bank's main policy objective; (ii) absence of fiscal dominance; (iii) central bank independence;¹² (iv) a considerable control over policy instrument; and (v) transparency and accountability. Within the five main criteria we distinguish 12 sub-criteria, which are given a scale ranging from zero to one (with higher values indicating a better performance) and assessed using legal and de facto indicators.¹³ The overall index is a weighted average of the individual criteria; the structure and specific scores of the index are spelled out in greater detail in Appendix III. The results from the index indicate that the strength of the monetary policy framework varies significantly within the region (Figure 3). According to the index, Guatemala has the strongest monetary policy framework in the region, with those of Costa Rica and Dominican Republic being above the regional average. However, the monetary frameworks in all CADR countries still lag far behind Chile, which was selected as benchmark given that it has one of the strongest monetary frameworks in Latin America.

Figure 3. Index of Strength of Monetary Policy Framework



The areas of the monetary framework that need to be strengthened the most are those related to establishing a clear mandate for the central bank and enhancing the effectiveness of the policy instrument (Table 2). In particular, the mandate of the central banks could be enhanced by placing greater emphasis on price stability and increasing exchange rate flexibility (Appendix III). Regarding the effectiveness of the policy instrument, all countries need to increase the signaling effect of the monetary policy rate and reduce the reliance on rules-based instruments and improve liquidity forecasting (particularly Costa Rica, Honduras and Nicaragua). In addition, all CADR countries need to strengthen central bank

¹² This section of the index is closely based on Cukierman and others (1992).

¹³ Information to classify each country according to the specified criteria is presented in Appendices I and II.

Table 2. Index: Strength of Monetary Policy Framework

	Weights	Costa Rica	Dominican Republic	Guatemala	Honduras	Nicaragua	CADR	Chile
Total index ^{1/}		0.53	0.53	0.67	0.41	0.29	0.48	0.96
(1) Central bank main policy objective	0.30	0.45	0.30	0.73	0.30	0.35	0.43	1.00
(2) Absence of fiscal dominance	0.25	0.61	0.80	0.80	0.35	0.15	0.54	1.00
(3) Central bank independence	0.20	0.62	0.47	0.54	0.57	0.44	0.53	0.82
(4) Effectiveness of the policy instrument	0.20	0.40	0.50	0.50	0.40	0.15	0.39	1.00
(5) Transparency and accountability	0.05	0.71	0.83	0.83	0.71	0.58	0.73	1.00

Source: Appendix III.

^{1/} Total index = 0.30*(1)+0.25*(2)+0.20*(3)+0.20*(4)+0.05*(5)

independence, but the policies to achieve it vary by country; for example, it is particularly important to strengthen the balance sheets of the central banks of Costa Rica, Honduras and Nicaragua, address the weaknesses in the composition of the monetary board in Guatemala and Nicaragua, and delink the terms in office of the governor from the political cycle in Dominican Republic. Moreover, it is important to reduce the degree of fiscal dominance by trimming down public debt ratios (Costa Rica and Nicaragua) and by prohibiting central bank lending or advances to the government (particularly Honduras and Nicaragua). Most countries in the CADR region, fare relatively well regarding transparency and accountability of its central banks, though improvements could still be achieved in this area by ensuring the publication of detailed financial statements following International Financial Reporting Standards and enhancing the reporting of the central bank governor to Congress.

IV. CONCLUSIONS AND POLICY RECOMMENDATIONS

Further strengthening the monetary policy frameworks of CADR countries would help reducing existing constraints to an effective monetary policy and achieve lower and more stable inflation rates. While the central banks in the non-dollarized economies of the region have continued to modernize their monetary frameworks and operations, there are important areas where efforts would bring them closer to international best practices. In particular, the index to measure the strength of the monetary policy frameworks for CADR countries, especially when compared to Chile, suggests that there is considerable room for improvement by establishing a clearer mandate for central banks and enhancing the effectiveness of the policy instrument.

Arguably, a key step that could be taken by central banks is to increase exchange rate flexibility. This would help reinforce price stability as the primary objective of monetary policy and avoid the appearance of multiple objectives, which could leave the system without a clear anchor and undermine its credibility. A higher degree of exchange rate flexibility is possible in economies that have some degree of financial dollarization, as shown by the experience of Peru and Uruguay (which also indicates that there is a role for foreign exchange intervention to dampen volatility, particularly in times of stress).

To increase the effectiveness of the policy instrument, the signaling function of the monetary policy rate has to be enhanced by removing structural excess liquidity in the banking system through more reliance on market-based monetary operations. To this end, central banks need to improve liquidity management by establishing cash flow programs and fine-tuning through the introduction of repos and reverse repos and promote further development of interbank markets. At the same time, there should still be a role for rules-based instruments, such as reserve requirements. In particular, the experience of Peru and Uruguay indicate that using higher reserve requirements on dollar deposits could be useful to reduce dollarization, thus helping increase the transmission mechanism of monetary policy. This policy could be considered in Costa Rica, Guatemala, and Nicaragua.

Two other important steps to strengthen monetary policy frameworks are to preserve the absence of fiscal dominance and enhance central bank independence, particularly as some CADR countries aim at enhancing or moving towards IT regimes. Most countries need to implement reforms aimed at stabilizing (or even reducing) public debt-to-GDP ratios and in some others (particularly Honduras and Nicaragua) it is also key to strengthen legislation to shield the central bank from financing the government. On central bank independence, it is key to tackle weaknesses related of the process of appointment/dismissal of the central bank governors, terms of the board linked to political cycles and the composition of the board, as well as strengthening the balance sheets of the central bank (particularly in the case of Costa Rica, Honduras, and Nicaragua).

Other conditions to enhance the monetary policy frameworks can be developed, and in some instances their fulfillment can be accelerated, once the above steps are taken. These conditions include developing further the capacity of central banks for inflation forecasting (where further technical assistance will be required), and continuing to improve the transparency and accountability of central banks (including by publishing monetary or inflation reports on a quarterly basis, and disclosing the minutes of their monetary policy decisions; Costa Rica could also continue publishing regularly an annual financial statement, audited externally).

Although not an immediate priority in the process of strengthening the monetary policy framework, it will be important to continue enhancing financial regulation and supervision in CADR to bring it to the standards of LA5 economies. In addition, various reforms could be implemented to help develop and promote diversification of financial markets. In particular, public debt issuance needs to be further standardized and government benchmark yield curves need to be established to help develop corporate debt markets. Also, the interbank markets should be further developed to help strengthen the interest-rate transmission of monetary policy (including by setting up an electronic book-entry system and central securities depository to facilitate the transfer of securities' ownership). The development of domestic financial markets could also be fostered by establishing a yield curve in domestic currency as a reference point to the corporate sector and by moving towards a defined benefits pension system.

Appendix I
Key Elements of a Strong Monetary Policy Framework: The Case of Chile, Peru and Uruguay

Ultimate goals and policy steps	Chile	Peru	Uruguay
<p>Goal: Price stability as the main monetary policy objective*</p> <p>Steps: Set out price stability as the main objective in Central Bank (CB) legislation. Shift focus from exchange rate stability or monetary aggregate if necessary.</p>	<p>Pre- IT The main goals of the Central Bank of Chile (BCC) were to encourage the orderly and progressive development of the national economy through credit and monetary policy, avoiding inflationary or depressive tendencies, and thus permitting the maximum use of the productive resources of the country.</p> <p>Current Since 1989, the main objectives of the BCC law are to safeguard the stability of the currency and ensure the normal functioning of domestic and external payments.</p> <p>To achieve this, the BCC must prevent the currency value from being eroded by price inflation. From an operational perspective, this is achieved through price-level stability.</p> <p>Since September 1999, the monetary policy regime is inflation targeting. The current annual inflation objective of 3.0 percent +/- 1 percent.</p>	<p>Pre- IT The main goals of the Central Bank of Peru (BCRP) were to keep monetary stability, manage credit conditions, promote output and employment growth, and foster the development of the banking sector.</p> <p>Current Since 1993, the law establishes as the main objective of the BCRP to preserve monetary stability. The objective of price stability was established as Board resolution and is not in the legislation.</p> <p>Since January 2002, the monetary policy regime is inflation targeting. The current annual inflation objective is 2.0 percent +/- 1 percent.</p>	<p>Pre- IT The main goals of the Central Bank of Uruguay (BCU) were to ensure currency stability, ensure the normal operation of the internal and external payment system, keep an adequate level of international reserves, and promote the solvency and adequate operations of the domestic financial system.</p> <p>Current Since 2008, the law established that the objective of the BCU is to seek price stability that is in line with growth and employment goals, and regulation and supervision of the payment system and financial sector.</p> <p>Since September 2007, the monetary policy regime is inflation targeting. The current inflation objective is a 4-6 percent range within an 18-month horizon.</p>

Ultimate goals and policy steps	Chile	Peru	Uruguay
<p>Goal: Absence of fiscal dominance*</p> <p>Steps: Establish legal separation between money creation and government funding. Maintain sound fiscal position.</p>	<p>Pre- IT For several decades Chile had a record of high and variable inflation and a monetary policy subordinated to fiscal financing. An amended BCC charter in 1979 prohibited financing to the public sector.</p>	<p>Pre- IT Prior to 1993, the BCRP could finance the public sector to offset a temporary mismatch between revenue and expenditure. There were no limits to BCRP holdings of treasury bonds or other public sector's financial instruments.</p>	<p>Pre- IT Prior to 2008, the BCU could provide 6-month advances to the government, with a limit of 10 percent of preceding year's non-interest budgetary expenditures. The BCU could also hold public sector's securities with the same limit of 10 percent of previous year's non-interest budgetary expenditure.</p>
	<p>Current The BCC cannot finance directly or indirectly the government, except in case of foreign war, as determined by the National Security Council. In addition the central bank cannot finance any state-owned enterprise.</p> <p>Fiscal discipline has supplemented the monetary framework; since 2000 the country adopted a structural balance rule.</p> <p>After a sizable fiscal stimulus in 2009 in response to the global crisis, large surpluses of the consolidated public sector turned into a structural deficit of 3 percent of GDP, while the gross public debt remained low at almost 28 percent of GDP. The current administration aims at a structural deficit of 1 percent of GDP by 2014.</p>	<p>Current The BCRP is prohibited to grant credit to the government, except for the purchase of Treasury securities, in the secondary market, with a limit of 5 percent of the monetary base.</p> <p>Fiscal discipline has been strengthened with the enactment of the fiscal and transparency law in 1999. Peru was able to implement a countercyclical fiscal policy in response to the global crisis. As a result, the consolidated public sector balance turned into a deficit of 2 percent of GDP in 2009. However, the deficit was financed mainly with savings and, thus, the public sector debt increased only slightly to 27.4 percent of GDP.</p>	<p>Current From 2008, advances to the government are prohibited. The BCU can provide credit to the public sector only through the purchase of public sector securities by up to 10 percent of previous year's non-interest budgetary expenditure.</p> <p>In 2009 fiscal policy was countercyclical. As a result, the public sector deficit widened slightly to 1.7 percent of GDP that year, while public sector debt remained practically unchanged at 61 percent of GDP.</p>

Ultimate goals and policy steps	Chile	Peru	Uruguay
<p>Goal: CB independence, including instrument independence*</p> <p>Steps: Strengthen CB balance sheet, review CB legislation, and protect CB governor's job security.</p>	<p>Pre- IT Since its foundation in 1925, the BCC did not have instrument independence. Moreover, the previous BCC 's charter (1975) created a monetary council dependent of the Executive, with ministerial rank and designated by the President of the Republic, responsible for establishing policies governing monetary, credit, capital market, foreign trade and customs, foreign exchange, and saving operations, in line with the rules established by the Executive.</p> <p>After the banking crisis of 1982, the BCC's balance sheet expanded due to the large credit support to the financial system. Since then the BCC net worth remains negative.</p>	<p>Pre- IT Although the BCRP charter provided for autonomy in the conduct of monetary policy, in practice the charter was overruled by other laws.</p> <p>The BCRP experienced substantial operational losses in the 1987-1990 period (on average 1.2 percent of GDP per year). These losses derived from the multiple exchange rate system, domestic purchases of gold and silver at artificially high prices, and subsidized credits to development banks and the government.</p>	<p>Pre- IT The BCU legal foundation and the constitution did not provide for monetary policy independence. The 1995 charter had several weaknesses including: a politically driven appointment of board members, an inappropriate mechanism for solving policy conflicts, and multiplicity of policy objectives. Furthermore, the constitution establishes that the executive branch can suspend BCU's policy decisions. The tenure of the governor and the board is the same and overlaps with that of the executive branch. The governor and two board members are appointed by the executive and need to be confirmed by the Senate. Dismissal procedures are not properly stated in the law; the executive can suspend and replace board members.</p> <p>Since its foundation the BCU has experienced operating losses. There was no statutory requirement for central bank recapitalization.</p>
	<p>Current The BCC independence is protected by the Constitution and a new charter (1989). The terms of office of the governor and board members do not overlap with the presidential period, and the governor is appointed with approval of the executive/ legislative. Board members are appointed for a 10-year period. Dismissal of board members goes through a double process, approved by President/Senate for violations codified in legislation.</p> <p>The 2006 Fiscal Responsibility Law established a mechanism for the central government to gradually recapitalize the BCC in years of fiscal surpluses. Between 2006 and 2008, the government reduced the estimated capital shortfall of the BCC by about 0.5 percent of GDP. However, the net worth of the BCC continues to be negative as a result of the large</p>	<p>Current The BCRP independence is protected by the Constitution and its new charter instituted in 1993. The tenure of the governor and board is the same and overlaps with that of the executive and legislative branches. The fact that the renewal of the seven BCRP board members coincides with the electoral cycle may undermine its independence. The President nominates four board members, including the governor, which need to be ratified by Congress; while Congress nominates and chooses directly three board members. Dismissal of board members is foreseen only for serious crimes of misconduct and prior approval by 2/3 of Congress.</p> <p>The BCRP bank sheet was strengthened in 1994 with a recapitalization from the government, since then the BCRP has not experienced losses. To keep capital integrity, the BCRP charter provides for transfer by the Treasury of marketable securities.</p>	<p>Current The 2008 charter redefined the key objectives of the BCU but did not provide for more autonomy. The appointment/dismissal of board was not changed and the constitutional right of the executive branch to suspend central bank decisions was maintained. However, during the past 10 years the BCU has enjoyed <i>de facto</i> more autonomy than what is implicit <i>de jure</i>.</p> <p>In October 2010, the government recapitalized the BCU with US\$2.4 billion worth of government inflation-indexed bonds (equivalent to 6 percent of GDP): US\$1.9 perpetual bond bearing a real interest of 3 percent, and a US\$0.46 billion in a 30-year bond bearing a real interest rate of 3.5 percent. Given the modality of the recapitalization, the net worth of the BCU continues to be negative under international accepted accounting standards.</p>

Ultimate goals and policy steps	Chile	Peru	Uruguay
	<p>costs of the financial crisis of 1982 and strong accumulation of international reserves during the decade preceding the adoption of full-fledged IT. Gross international reserves increased by US\$16.7 billion between 1988 -1997, which represented 34 percent of the average GDP for the same period.</p>		
<p>Goal: Exchange rate flexibility*</p> <p>Steps: De facto exchange regime changes to move from fixed to float. Exchange rate must be subordinated to IT.</p>	<p>Partial adoption of IT In 1991 the BCC adopted an exchange rate band regime. The band experienced several modifications in the 1990's including realignment of the central parity, its width, the rate of crawl, the reference currency basket, and the degree of symmetry. The BCC intervened actively and maintained regulations to capital inflows.</p> <p>Current In September 1999, the BCC adopted a full-fledged inflation targeting regime and a free floating exchange rate regime. It completely opened the capital account and promoted deepening of foreign exchange derivative (forward) markets. Foreign exchange interventions have been infrequent and when implemented through a mechanical and predetermined process.</p>	<p>Pre- IT In early 1991, the BCRP unified the foreign exchange market, previously segmented in four different exchange rates and allowed the exchange rate to float. It also eliminated foreign exchange controls.</p> <p>Current Since 1991, the BCRP has maintained a floating exchange rate regime with frequent central bank interventions.</p>	<p>Pre- IT Until 2002 the BCU pursue a crawling band regime that was abandoned during the banking crisis.</p> <p>Current Since 2002, the CBU has maintained a floating exchange rate regime. The exchange rate has remained broadly stable but with interventions by the CBU to smooth volatility.</p>

Ultimate goals and policy steps	Chile	Peru	Uruguay
<p>Goal: Effectiveness of the policy instrument, which implies developing and understanding the interest-rate transmission mechanism.</p> <p>Steps: Move from reliance on rules-based instruments to open market-type operations to full reliance on money market operations. Reduce structural liquidity surplus, develop liquidity management and forecasting. In tandem, intermediate monetary targets should progress from exchange rate, to quantities, to a short-term interest rate as an operational target. Reduce dollarization.</p>	<p>Pre- IT During 1985-1995, the operational target was the real interest rate of a 90-day indexed BCC paper. From 1995 to July 2001, the operational target became the daily real interbank rate. The BCC announced a policy rate and guided the interbank rate toward the policy rate by conducting open market operations.</p> <p>Reserve requirements were not used actively to influence liquidity. During this period, the BCC refined the scope of its monetary instruments, increasingly adopting market-determined interest auctions, extending maturity of central bank paper. It began to announce a monthly plan for the issuance of BCC paper, developed credit and a deposit facilities, and repos and reverse repos operations.</p>	<p>Pre- IT During the informal monetary target regime (1991-2000), the BCRP pursued a disinflation objective using as an intermediate target the growth of the monetary base. From 2001 to 2002, the operational target was changed to a quantitative target, namely banks' reserves at the central bank.</p> <p>During this period, the BCRP started to rely increasingly on market-based instruments. For operational purposes in the early 1990's the BCRP began to issue its own instruments, initially in the form of certificate of deposits (CDs), introduced repurchase operations with CDs, and established short-term facilities to inject (a credit facility) and to withdraw liquidity (overnight deposit facility). Regarding reserve requirements, the BCRP reduced average reserve requirements on domestic currency gradually from close to 40 percent in 1990 to 6 percent in 2000. Reserve requirements on dollar-denominated deposits were higher than on domestic currency deposits and were generally used to reduce upward pressures on the sol during periods of intense capital inflows.</p>	<p>Pre- IT After the 2002 crisis, the BCU initially adopted quarterly monetary base targets. In 2004 it moved to target a range for monetary base growth and started announcing a target for annual inflation. In late 2004, the BCU adopted as intermediate target the growth rate in M1 (consistent with an announced inflation range for the following 18-months) and as operating target the monetary base, which was not announced to the public. During this period, it appeared that the monetary policy pursued multiple targets: M1, the inflation rate, and a stable exchange rate.</p> <p>Reserve requirements and issues of BCU notes were used actively to drain excess liquidity. Reserve requirements were not uniform and were lower for domestic currency liabilities and longer term deposits. Maturities of BCU notes ranged from one day to two years. Inflation-linked notes of longer maturities (up to three years) were also used to drain excess liquidity. The central bank also had a liquidity window to cover daily shortfalls, but this type of facility was rarely used.</p>
	<p>Current The monetary policy is anchored to an annual inflation target and a floating exchange regime. Since August 2001, the operational target is the daily nominal interbank rate. Monetary policy instruments include open market operations of BCC securities, repurchase and reverse repurchase operations, standing facilities, and commercial banks' reserve requirements (not used actively).</p> <p>The BCC has developed a fairly good understanding of transmission mechanisms. BCC's empirical studies have estimated that monetary policy's pass-through takes from two</p>	<p>Current In 2002, the BCRP switched to a formal inflation targeting regime. The BCRP announces an annual end-year inflation target, defined by changes in the CPI of Lima. During 2002, the operational target was a benchmark corridor for the interbank rate, with the upper bound the rediscount rate and the lower bound the deposit facility rate. Since 2003 the operational target is the interbank rate and the BCRP mostly relies on market-based instruments for its monetary operations but still uses reserve requirements.</p> <p>Understanding the transmission mechanism has been a complex task in a dollarized economy and</p>	<p>Current The macroeconomic Coordination Committee (composed of representatives from the Ministry of Finance and Board of Directors of the BCU) sets a target range for inflation at its quarterly meeting for an 18-month horizon.</p> <p>Since late 2007, the BCU began to signal its monetary policy stance with a monetary policy rate and adopted as operational target a daily market interest rate (average of interbank rate and rates of repo and CD operations of banks with the central bank). The BCU relies on market-based instruments to manage liquidity, including central bank letters (with maturities</p>

Ultimate goals and policy steps	Chile	Peru	Uruguay
	<p>to five quarters for demand and production, and four to eight quarters for inflation.</p> <p>The BCC manages liquidity through the use of several instruments but mainly through regular auctions of central bank paper. To regulate liquidity in the financial system, the BCC prepares a cash-flow program for the period of measurement of reserve requirements. This cash flow program is based on projections of the supply and demand of bank reserves. Once projections are determined, the volume of central bank paper to be auctioned is decided and a calendar of auctions is communicated to the public before a reserve maintenance period starts. There is a daily follow up of liquidity projections, which permit to fine-tune actual bank reserves via repurchase and reverse repurchase operations and by standing facilities. Additionally, once a year the BCC unveils its debt issuance program.</p> <p>Dollarization has not been a critical issue in Chile. By end-2010, the share of foreign denominated credit and deposits stood at 8 percent and 11.5 percent, respectively.</p>	<p>under an evolving framework for monetary policy. There is some empirical evidence showing that since the transition to IT, the inflation response to interest rates has increased, while the response to the nominal exchange rate decreased. The BCRP has incorporated its understanding of the monetary transmission mechanism in its quarterly forecasting model for the economy (i.e., it models the interest rate as well as the exchange rate and expectation channels).</p> <p>The daily monetary operations are oriented toward stabilizing the policy rate announced by the BCRP, which communicates the policy stance. This has led to a decline in the volatility of the interbank overnight rate and to strengthen the interest rate pass-through.</p> <p>With the introduction of the IT regime, Peru has experienced a gradual and sustained market-driven financial de-dollarization. Credit dollarization of the banking system declined by almost 30 percentage points between 2002 and 2010, and in December 2010 stood at about 50 percent; deposit dollarization declined by about 25 percent in the same period, and in December 2010 stood at 47 percent of total deposits. This process has been supported by several prudential measures during the last decade to reduce banks' incentive to borrow or lend in foreign currency. These measures include, higher reserve requirements and liquidity requirements for foreign currency deposits and lower reserve requirement remuneration for foreign currency deposits, higher provisioning requirements for credit in foreign currency, and stricter limits on bank's net open foreign position.</p>	<p>from 30-days to 3 years), certificate of deposits (maturities from 1-30 day), and repos. It also established standing facilities, credit and deposit facility to manage short-term liquidity. The BCU also relies on reserve requirements to control liquidity in the market and continues to maintain differentiated reserve requirements according to maturity and currency of deposits.</p> <p>A better understanding of transmission mechanisms and enhancing the effectiveness of monetary policy are a high priority in the BCU's strategic plan for 2010-14. The BCU has outsourced several empirical studies to improve its knowledge on transmission channels of monetary policy. Currently, low financial intermediation and the structure of the financial system weaken the credit channel, while high financial dollarization reduces the effectiveness of the interest rate and exchange channels. However, there is some evidence that since late 2007 policy rate changes are transmitted to interest rates and inflation.</p> <p>The BCU has strengthened liquidity forecasting and had begun to use more actively open market operations to drain the excess of structural liquidity from the system. To fine tune it uses actively short-term instruments such as certificate of deposits and repos and reverse repos.</p> <p>Although in a declining trend, financial dollarization remains high. By end- 2010, the share of foreign-denominated credit and deposits reached 55 percent and 72 percent, respectively. In recent years, the BCU has taken regulatory steps to discourage dollarization including: limits on net open foreign currency positions of banks, higher capital requirements for foreign currency loans, higher reserve and liquidity requirements on foreign currency deposits, and tighter loans classifications for foreign currency loans.</p>

Ultimate goals and policy steps	Chile	Peru	Uruguay
<p>Goal: Reasonably well-developed and diversified financial markets. Low bank concentration. Reasonably stable financial system</p> <p>Steps: Expand bank credit and competition. Develop efficient financial infrastructure, such as payment & settlement systems. Develop interbank, secondary government debt, and FX markets. Strengthen financial sector surveillance. Deal with insolvent banks. Develop deposit insurance scheme.</p>	<p>Current: A comprehensive banking reform was implemented in 1986 drawing lessons from the banking crisis of 1982-85. The regulatory framework included the establishment of a partial deposit insurance system to introduce market discipline, established strict monitoring of loan provisioning, centralized debtor risk information, set strict limitations to related-lending, and imposed portfolio restrictions to limit exposures to exchange rate, interest rate, and credit risks. The banking sector is sound with adequate capitalization and liquidity levels. As of June 2011, non-performing loans in the banking system were 2.5 percent of total loans, and the capital adequacy was 13.8 percent. The banking system is not very concentrated compared to the region.</p> <p>The pension reform from a pay-as-you-go to a fully funded system of early 1980, helped shape the development of the financial system by allowing a stable accumulation of large funds to be invested in private sector assets. The financial market is among the most developed in Latin America, its assets (including commercial banks, pension funds, insurance companies, and securities market intermediaries) accounted for about 225 percent of GDP in 2009. Other features include low dollarization, relatively long bond maturities, large corporate external liabilities, and large private assets abroad. The equity market is also large by Latin American standards, but still illiquid. A real time gross settlement (RTGS) system was established in early 2004; the system which has reduced risks and improved information timeliness is administered by the BCC and used by the whole banking system.</p>	<p>Current: The Peruvian financial system has been strengthened over the last decades as a result of upgrades in the prudential framework and consolidated macroeconomic stability. The banking system has gradually improved in terms of capitalization, profits and liquidity indicators, and dollarization has been reduced gradually. In December 2010 non-performing loans reached 1.5 percent and the capital adequacy ratio 13.7 percent in the banking system.</p> <p>The capital market has begun to develop with the growth of private pension funds and the development of the domestic government debt market since early 2000. There have been other important steps to develop the capital market: establishing a real time gross settlements (RTGS) system in 2000, reforming the bankruptcy law in 2002 and the securities settlement system in 2005, setting up a unified registry of collateral and a specialized court to settle commercial and financial disputes in 2006, reforming the financial system law and the capital market law to facilitate financial operations in 2008, and empowering the BCRP to oversee and regulate the payment system in 2009.</p> <p>The financial system still remains relatively small, with assets of the financial system accounting for about 42 percent of GDP in 2010. The banking system is concentrated for regional standards. A process to merge the stock exchanges of Peru, Colombia and Chile initiated in 2011, will broaden investment options and will become the second largest stock exchange in the LA region.</p>	<p>Current: The financial system has been strengthened in the aftermath of the 2002 crisis. The regulatory framework has been continuously updated, including improved norms for financial reporting standards, solvency, loan classification tied to provisioning, concentration limits, liquidity, risk management, corporate governance, and licensing. As a result, financial sector soundness indicators have improved considerably. The banking system is now profitable and has become better capitalized. Non-performing loans stood at 1.2 percent of total loans in September 2010 and the capital adequacy ratio reached 17 percent.</p> <p>The financial system is dominated by banks, while the equity market and the domestic corporate bond market are small and illiquid by regional standards. The banking system is concentrated and dominated by large public banks (46 percent of system assets) and foreign-owned banks. Banking intermediation is low for regional standards, with credit to the non-financial private sector at about 24 percent of GDP in 2010.</p> <p>The BCU has focused on the development of the fixed-rate local currency securities markets. This has been done by lengthening the maturity structure of central bank securities (<i>Letras de Regulación Monetaria</i>). This has allowed the central bank to build up a yield curve in local currency of up to 3 years. Other efforts to develop the capital markets include the approvals of new laws related to bankruptcy in 2008, capital markets in 2009, and the payment system in 2010.</p>

Ultimate goals and policy steps	Chile	Peru	Uruguay
<p>Goal: Reasonable methodology for inflation forecasting</p> <p>Steps: Develop technical capacity, data availability, models, surveys, and judgment.</p>	<p>Current</p> <p>Model development and use is a dynamic process as the BCC is continuously updating and developing new macroeconomic models. The BCC has developed several types of models for forecasting: (i) time series-type of models for short-term forecasts, (ii) a structural quarterly forecasting model with five major blocks: a short-term curve, and aggregate demand or IS curve, a monetary policy rule that determines short-term interest rates, a yield curve that incorporates a relation between short and long-term interest rates, and an interest rate parity condition that determines exchange rate dynamics; and (iii) a dynamic stochastic general equilibrium (DSGE) model based on explicit inter-temporal optimization, heterogeneous agents, and nominal and real rigidities.</p> <p>The BCC conducts a monthly survey of private sector experts regarding economic expectations, including inflation, and discloses it on the website.</p>	<p>Current</p> <p>The BCRP has developed three types of models for forecasting: (i) a semi-structural quarterly forecasting model with four major blocks: a Phillips curve, a IS curve, an exchange rate equation and a monetary policy rule; (ii) a dynamic stochastic general equilibrium (DSGE) model; and (iii) VAR type models for short-run forecasts.</p> <p>The BCRP undertakes a monthly survey of macroeconomic expectations, including inflation, of private sector and financial sector experts, and academics. It discloses the results on its website.</p>	<p>Current:</p> <p>The central bank has developed VAR type models for short-run forecasts and a quarterly macroeconomic model for forecasting and policy analysis. The quarterly model has four major blocks (aggregate supply; aggregate demand; a nominal block to determine prices, exchange rate, and wages; and a block for interest rates).</p> <p>The BCU conducts a monthly survey of macroeconomic expectations, including inflation, on private sector experts and discloses the results on its website.</p>
<p>Goal: Accountability and transparency of the CB.</p> <p>Steps: Publish regular CB reports, monetary data, and CB inflation forecasts.</p>	<p>Current</p> <p>The BCC informs the president of the republic and appears before Congress four times a year. It also publishes every quarter a monetary policy report, twice a year a comprehensive financial stability report, and once a year a reserve management report. In addition, the BCC regularly publishes extensive monetary and economic data on its website.</p> <p>The BCC discloses a communiqué following the monthly meeting of the Council. It also posts on its website information about all other policy decisions. It publishes minutes of the policy meetings and voting patterns.</p> <p>The BCC prepares a report containing its financial statements, audited by an external firm. The report is available to the public and</p>	<p>Current</p> <p>According to the constitution, the BCRP has to inform the country, punctually and periodically, of the status of national finances, under the responsibility of the board. The board also submits to the minister of economy and finance a report regarding all aspects of the economic policy. The BCRP publishes a quarterly inflation report and a financial stability report once or twice a year. The BCRP publishes on a regular basis extensive monetary and economic data on its website. It also publishes information about foreign exchange intervention on a daily basis.</p> <p>After approval by the board, the BCRP publishes their financial statements in the official gazette, audited and certified by the chief of the internal control unit, and on its web site audited after it has been audited by an external firm. The BCRP also</p>	<p>Current</p> <p>The BCU presents its annual financial report to the executive. It also publishes quarterly a monetary policy report and a financial stability report. In addition, the BCU publishes comprehensive monetary and economic information in its website.</p> <p>The BCU prepares a report containing its financial statements, audited by an external firm. The report is available to the public on its web site.</p> <p>The central bank discloses a communiqué following the quarterly meeting of the monetary policy committee and posts it on the website, along with other relevant information.</p>

Ultimate goals and policy steps	Chile	Peru	Uruguay
	submitted to the minister of finance and the Senate before end-April of each year.	<p>publishes each month a summary of its balance sheet in the official gazette.</p> <p>The BCRP does not publish minutes of policy meetings but discloses a communiqué following the monthly meeting of the board and posts it on the website, along with other relevant information.</p>	

Sources: Websites of the Central banks of Chile, Peru and Uruguay; publications of central banks of Chile, Peru and Uruguay; and IMF country reports.

* A survey of the studies of the adoption of IT frameworks reveals the first three conditions (in bold) should be met prior to the adoption of IT in emerging markets (see Freedman and Otker-Robe, 2010). Some degree of exchange rate flexibility is also needed at the outset of IT; most other conditions can be developed afterwards.

Appendix II
The Monetary Policy Framework in CADR Countries

Ultimate goals and policy steps	Costa Rica	Dominican Republic	Guatemala	Honduras	Nicaragua
<p>Goal: Price stability as the main monetary policy objective*</p> <p>Steps: Set out price stability as the main objective in Central Bank (CB) legislation. Shift focus from exchange rate stability or monetary aggregate if necessary.</p>	<p>The primary objective of the Central Bank of Costa Rica (the BCCR) is to maintain internal and external stability of the national currency and ensure its convertibility (Organic Law). The secondary objectives include promoting the orderly development of the national economy to achieve the full use of productive resources, and avoiding inflationary or deflationary tendencies that could arise.</p> <p>The monetary policy framework is transitioning to inflation targeting within an exchange rate band to the U.S. dollar. Costa Rica is in the process of transitioning to IT. Its inflation objective for end-2011 is 5.0+/-1 percent and 4.0+/-1 percent for end-2012.</p>	<p>The legislation establishes price stability as the main objective for the Central Bank of the Dominican Republic (BCRD).</p> <p>The monetary policy framework has no explicitly stated nominal anchor, but monitors various indicators including the exchange rate. The authorities plan to move to IT in 2012. The current inflation target range for end-2011 is 5-6 percent, and for end-2012 and beyond, is 4-5 percent.</p>	<p>The fundamental objective of the Central Bank of Guatemala (Banguat) is to help create favorable conditions for the orderly development of the economy. It should promote monetary, exchange, and credit conditions conducive to price stability (Organic Law of Banguat).</p> <p>The monetary policy regime is inflation targeting with an objective of 5.0 percent +/- 1 percent for end-2011, 4.5 percent +/- 1 percent for end-2012, and 4 percent +/- 1 percent over a three-year convergence period.</p>	<p>The Central Bank of Honduras' (BCH) main objectives are to preserve the internal and external value of the domestic currency and promote the normal functioning of the payments system.</p> <p>The monetary policy regime is an exchange rate anchor to the U.S. dollar.</p>	<p>The primary objective of the Central Bank of Nicaragua (BCN) is the stability of the national currency and the normal functioning of internal and external payments.</p> <p>The monetary policy regime is an exchange rate anchor to the US dollar.</p>
<p>Goal: Absence of fiscal dominance*</p> <p>Steps: Establish legal separation between money creation and government funding. Maintain sound fiscal position.</p>	<p>The BCCR is not allowed to provide credit to the government. However, it is allowed to buy treasury bills in the primary market at a market rate as long as the proceeds are not used for refinancing of treasury bills from the BCCR portfolio. The balance of treasury bills in BCCR portfolio cannot exceed 1/20 of government's expenditure.</p> <p>With the global crisis in 2008, the public sector debt ratio increased, reaching 39 percent of GDP in 2010. While still at a moderate</p>	<p>The law prohibits financing the government except under emergency procedures.</p> <p>After a fiscal expansion in 2009 to counteract the global crisis when gross public debt peaked at almost 42 percent of GDP, gradual fiscal consolidation has started in 2010 under an IMF program, and is expected to continue in 2011 and 2012.</p>	<p>The Banguat is not permitted either directly or indirectly to provide credit to the government (constitutional mandate), except under emergency conditions.</p> <p>Public sector debt has been rising and in 2010 reached 24 percent of GDP. Although still at relatively low levels, public debt is projected to increase further over the medium term in the absence of a comprehensive tax reform.</p>	<p>By law, the BCH cannot provide credit directly or indirectly to the government, except under emergency conditions. It can only buy public securities in the secondary market. However, it can provide a 6-month overdraft facility to the government to manage seasonal liquidity shortages, with a limit of 10 percent of preceding year's tax revenue. Despite this, in the past two years the BCH law has been overruled in three occasions.</p>	<p>The BCN cannot provide credit—directly or indirectly—to the government. However, it can provide short-term advances in exchange for treasury bonds of up to 10 percent of the average tax revenues recorded in the previous two fiscal years.</p> <p>Following efforts in improving tax administration and adherence to tax</p>

Ultimate goals and policy steps	Costa Rica	Dominican Republic	Guatemala	Honduras	Nicaragua
	level, IMF staff projects that it will continue increasing over the medium term.			Public sector debt is low at 26 percent of GDP, mainly due to the debt relief provided by the international community in the mid-2000s. Fiscal consolidation started in 2010 and the goal is to bring the fiscal deficit to about 2 percent of GDP by 2012.	measures approved in 2009, revenue performance has improved. As a result, the fiscal deficit started to fall in 2010. Nonetheless, public debt remains high (80 percent in 2010). Policies anchored on containing expenditure and paving the way for fiscal consolidation would help bring the public debt ratio to 66 percent by 2014.

Ultimate goals and policy steps	Costa Rica	Dominican Republic	Guatemala	Honduras	Nicaragua
<p>Goal: CB independence, including instrument independence*</p> <p>Steps: Strengthen CB balance sheet, review CB legislation, and protect CB governor's job security.</p>	<p>The Board of Directors (BoD) is responsible for formulating and conducting monetary, exchange rate, and credit policies and has instrument independence. While it meets weekly, there is no predetermined calendar for the decisions on the policy rate.</p> <p>The BoD consists of seven members, including the Governor of the BCCR, the minister of finance and other five members. The Governor of the BCCR is appointed by the Governing Council chaired by the President of Costa Rica for the period of 4 years coinciding with those of the President. The President also appoints 5 other members for the period of 90 months who should be ratified by Congress. The Governor can be freely removed by the Governing Council, while the other 5 members can only be removed for legal reasons.</p> <p>There is no legal provision requiring the government to compensate the losses of the BCCR. For years the BCCR has had a significant negative capital position due to quasi-fiscal activities in the 80-s and 90-s. A recapitalization bill was submitted to Congress in 2007 but has not been approved. As of end-2010, the negative capital position of the BCCR exceeded 7 percent of GDP.</p>	<p>The BCRD has functional and legal autonomy, but the governor is appointed by the president.</p> <p>The governor and the board members are appointed for two-year terms. The main members of the Monetary Board are the governor of the central bank, the minister of finance and the superintendent of banks. A new draft law is being considered that would allow for four year term for the governor an board members, which will not overlap with the presidential period, thus enhancing independence and autonomy.</p> <p>Central bank debt as result of the legacy of the 2003-2005 banking crisis is relatively high (11 percent of GDP in 2010). There is a plan for recapitalizing the central bank, which involves annual transfers from the treasury to the BCRD.</p>	<p>The Banguat does have de jure instrument independence. Its Monetary Board (MB) takes decisions on the policy rate based on a predetermined published calendar, and meets about eight times a year.</p> <p>The governor is appointed by the president for four years, and the term does not coincide with that of the president. The governor can only be removed for legal reasons, except that a qualified majority of Congress has the right to fire him if its annual report to Congress is deemed unsatisfactory. The MB's independence is undermined by its composition: it has nine members including the ministers of finance (MoF), of the economy, and of agriculture, representatives of Congress, the largest public university, the banking association, and non-bank private sector entrepreneurs.</p> <p>The Banguat is obliged to inform the MoF if it incurs in operational deficits. Since 2003, these deficits must be absorbed by the Banguat's general reserve account (under capital) or, if there are insufficient resources to cover the deficit, the MoF has to incorporate the balance in the next year's budget, to be covered by government securities. The operating deficit was 0.2 percent of GDP in 2010, and half of this will be covered</p>	<p>The BCH has de jure instrument independence.</p> <p>The BCH board is comprised by five members, including its president, who are directly appointed by the President of the Republic for a four-year period. The terms of two members of the board, including the president overlap with the President period. The three other board members are appointed on a staggered basis. Members of the board can be dismissed following an investigation by the executive branch on legal grounds established in the BCH charter.</p> <p>While the BCH charter requires that the government assumes the losses of the central bank, the non-market terms and conditions of the bonds received have not contributed to preserve the capital integrity of the BCH. During 2010, BCH losses were 0.2 percent of GDP and cumulative losses reached about 3.0 percent of GDP by end-2010.</p>	<p>The BCN has de jure instrument independence but its high quasi-fiscal losses weaken its financial position and its capacity to implement independent monetary policy.</p> <p>The Board of Directors (BoD) comprises six members, including the president, the minister of finance, and four members of the private sector. The president of the country directly appoints the BoD president and four members, which needs ratified by Congress, for a five-year term. According to the new BCN law (2010), the BoD president and three board members serve for 5 years and are appointed in the middle of the presidential term. Only one board member is appointed for a period overlapping with the presidential term. BoD members can be dismissed following an investigation by the BoD on legal grounds, including lack of professional competence in conduct of their duties. The president of the republic takes the final decision.</p> <p>The government is mandated to absorb the</p>

Ultimate goals and policy steps	Costa Rica	Dominican Republic	Guatemala	Honduras	Nicaragua
			by government securities at below-market rates. As of end-2010, total accumulated losses were 4.6 percent of GDP.		losses of the central bank but this has been in the form of very long-term, relatively low-yielding government bonds. The new BCN law (2010) establishes that in 2011 the government and the BCN will agree on options for the recapitalization of the Bank with market yielding government bonds. The central bank's deficit was 0.9 percent of GDP in 2010, a decline from 1.2 percent of GDP in 2009.
<p>Goal: Exchange rate flexibility*</p> <p>Steps: De facto exchange regime changes to move from fixed to float. Exchange rate must be subordinate to IT.</p>	<p>The IMF de facto exchange rate classification is other managed arrangement, which consists of a crawling band with a flat floor and a preannounced daily rate of devaluation for the ceiling. The width of the band exceeds 30 percent of the floor value. The BCCR intervenes in the FX market to: (i) buy the currency at the request of nonfinancial public sector, (ii) defend the band, (iii) smooth the fluctuation of the exchange rate within the band, and (iv) accumulate international reserves. In September 2010, the BCCR launched a 16-month US\$600 million purchase program.</p> <p>The exchange rate stands very close to the floor of the intervention band forcing the BCCR to intervene. In practice, the exchange rate is not subordinate to inflation targets.</p>	<p>The de jure exchange rate regime is a managed float, but in practice the exchange rate is a key anchor for monetary policy and is tightly managed with discretionary intervention. The IMF de facto classification is a stabilized arrangement. There is a commitment to further exchange rate flexibility in the Fund program.</p>	<p>Guatemala has a de facto floating exchange rate regime according to the IMF classification. The Banguat does intervene to tame volatility according to a publicly known rule, which currently can be up to US\$32 million a day if the exchange rate deviates by more than 0.6 percent from its five-day moving average. The Banguat can also intervene at its discretion, though intervention is usually triggered by the rule. The exchange rate is subordinated to IT.</p>	<p>The IMF de facto exchange rate classification is a stabilized arrangement. The BCH satisfies every admissible bid at a daily foreign exchange auction, thus pegging the exchange rate at the reference rate. De jure, Honduras maintains a crawling band since 1994; the band width could stretch to 7 percent on either side of the central parity; the central parity is given by the difference between domestic inflation and that of its main trading partners. The foreign exchange system is built on a general surrender requirement of foreign currency, with some exceptions, for maquila exports and exports within the Central America Free Trade Agreement.</p>	<p>The de jure and IMF de facto exchange rate arrangement is a crawling peg. The exchange rate is determined by market supply and demand; however, BCN may intervene.</p> <p>The official exchange rate is determined and preannounced by the BCN. The exchange rate against the dollar depreciates 5 percent a year. There is no tax on exchange transactions; however, the BCN charges a commission of 1 percent on the sale of foreign exchange. There is no foreign currency surrender requirement.</p>

Ultimate goals and policy steps	Costa Rica	Dominican Republic	Guatemala	Honduras	Nicaragua
<p>Goal: Effectiveness of the policy instrument, which implies developing and understanding the interest-rate transmission mechanism.</p> <p>Steps: Move from reliance on rules-based instruments to open market-type operations to full reliance on money market operations. Reduce structural liquidity surplus, develop liquidity management and forecasting. In tandem, intermediate monetary targets should progress from exchange rate, to quantities, to a short-term interest rate as an operational target. Reduce dollarization.</p>	<p>The monetary policy rate of the BCCR is defined as the center of a corridor for short-term interest rates. The floor and the ceiling of this corridor correspond to the BCCR overnight deposit and lending rates respectively. The BCCR relies on the discretionary ones, such as the auctions for liquidity injection and withdrawal for 1, 7 and 14 days.</p> <p>The BCCR also uses reserve requirements on deposits in domestic and foreign currency with average provisions, which are 15 percent regardless of the currency.</p> <p>Open market-type operations include auctions of BCCR zero-coupon bonds at 12 months maturity and coupon bonds at 3 and 5 years maturity.</p> <p>Low exchange rate flexibility, financial dollarization, and undeveloped financial markets undermine the effectiveness of the interest-rate transmission mechanism.</p> <p>The crawling band implies that the liquidity conditions on the money market are at times endogenous, which poses difficulties to liquidity forecasting. The BCCR prepares liquidity forecasts every two weeks.</p> <p>High dollarization of deposits observed during the global financial crisis has begun to reverse, but remains well above</p>	<p>The BCRD uses indirect instruments and an overnight policy rate to signal the monetary policy stance. To set a corridor for interbank interest rates, the central bank uses the short-term deposit facility and the overnight lending facility.</p> <p>The BCRD also undertakes open market-type operations using its own paper: treasury bills with maturities of 28-308 days, and bonds with a maturity range of 1 to 5 years.</p> <p>The BCRD also relies on reserve requirements to control liquidity in the market. Reserve requirements in local currency are 17 percent for banks, and 12.5 percent for other financial institutions; in foreign currency, they are 20 percent for all financial institutions.</p> <p>The interest-rate transmission mechanism can be increased by allowing greater exchange flexibility. Dollarization is not too high compared to some other Latin American countries, but at 28.4 percent of bank deposits as of December 2010 it is high enough to have a negative effect on the transmission mechanism.</p> <p>A structural liquidity surplus has also affected the power of monetary policy in the past few years. The government understands the transmission mechanism but liquidity management and forecasting is</p>	<p>The Banguat has a policy rate as its operational target. To better manage short-term liquidity with financial institutions, in June 2011 the Banguat adopted an overnight rate with one-day instruments. There are also two standing facilities to withdraw and inject liquidity working at punitive rates.</p> <p>The Banguat also still relies on rules-based instruments with reserve requirements set at 14.6 percent of both foreign currency and local currency deposits.</p> <p>The Banguat also conducts open market-type operations from 3 months to 8 years using certificates of deposit (CDs). In the medium term, the central bank is expected to undertake open-market operations with Treasury bonds on the secondary market.</p> <p>The interest-rate transmission mechanism does not function well due to excess liquidity in the financial system, undeveloped capital markets, low exchange rate flexibility, and dollarization.</p> <p>The Banguat conducts liquidity forecasting on a daily basis; forecasts for at least one month will be necessary with the adoption of the overnight rate with one-day instruments, which is expected to help address the</p>	<p>The monetary policy instruments of the BCH consist of: (i) reserve requirements, including 6 percent unremunerated reserve requirements in domestic currency and 12 percent in foreign currency; (ii) 12 percent mandatory remunerated investments in domestic currency, and 10 percent in foreign currency, (iii) weekly auctions of central bank paper in domestic currency and in less proportion in foreign currency (the BCH issues 28 to 360-days maturities, zero coupon securities to manage structural liquidity, and 7-day maturity to manage short-term liquidity) (iv) overnight deposit and credit facilities (using central bank securities as collateral).</p> <p>The BCH also announces a monetary policy rate. Intermediate targets are net international reserves and net domestic assets of the central bank.</p> <p>The lack of exchange rate flexibility and a structural excess liquidity undermines the effectiveness of monetary policy.</p> <p>The liquidity forecasting system is still weak. The BCH used to use a short-term forecasting model best-suited for medium to long-term forecasting. These forecasting errors translate in</p>	<p>The following monetary policy operations are primarily geared to support the crawling peg exchange rate regime: (i) the BCN uses the weekly auctions of its own paper, and letras in U.S. dollars with maturities from 30 days to 10 months to maintain an adequate level of international reserves and manage seasonal behavior of money demand; (ii) on the lending side, the BCN has three facilities: (a) the overnight facility to cover banks' liquidity shortfall; (b) the report facility to provide credit to banks and other financial institutions; and (c) a financial assistance facility for credit for up to 30 days against a wider range of collateral (but rarely used in practice); and (iii) reserve requirements of 16.25 percent on deposits in domestic and foreign currencies.</p> <p>Under financial programming, the final objective is to address inflation and the intermediate target is the net international reserves.</p> <p>Monetary policy transmission channels are weak due to shallow markets, low exchange</p>

Ultimate goals and policy steps	Costa Rica	Dominican Republic	Guatemala	Honduras	Nicaragua
	<p>pre-crisis level. At the same time, credit dollarization has resumed a downward trend and, as of December 2010, it reached about 38.6 percent of banks and other depository institutions.</p>	<p>done only on a weekly scale since the money market and bond markets are not deep enough to allow fine tuning.</p>	<p>excess liquidity.</p> <p>Dollarization of the financial system has declined somewhat but it was still 33 percent of total financial sector assets as of December 2010. It has declined largely due to the shrinking of the offshore sector (which has become better regulated).</p>	<p>over/under allocations in weekly liquidity operations.</p> <p>Dollarization of deposits and credit to the private sector has remained relatively stable in the last decade; by December 2010 the dollarization of banks' deposits reached 29 percent and of credit 24 percent.</p>	<p>rate flexibility, high dollarization, and high concentration of bank assets. These limitations of monetary policy instruments have led banks to maintain a high degree of liquidity.</p> <p>Dollarization has declined in recent years, but at end-December 2010, deposit dollarization was still very high at 73 percent of total bank deposits.</p> <p>BCN carries out monthly liquidity forecasting after adjusting for seasonal trends. The BCN plans and executes open market operations with the aim of observing its international reserves target in line with its monetary program.</p>
<p>Goal: Reasonably well-developed and diversified financial markets. Low bank concentration. Reasonably stable financial system</p> <p>Steps: Expand bank credit and competition. Develop efficient financial infrastructure, such as payment &</p>	<p>Capital markets are small but relatively developed. A corporate debt market, a securities market, and a mutual fund industry are present. Most of the trading volume of the securities exchange, however, comes from repos on government bonds. Corporate security issuance suffers from the absence of a government benchmark yield curve due to fragmentation of sovereign debt between the central bank and the ministry of finance and non standardized issuance.</p>	<p>The banking market is relatively well developed, but bank concentration is high for the region. The interbank money market exists but is not deep. Foreign exchange markets are still dominated by central bank intervention. Local bond markets are dominated by central bank bonds, although government treasury bonds have become important in the last two years. A real-time payments and clearance system has recently been introduced. An important impediment has been the lack of</p>	<p>Capital markets remain underdeveloped. They largely consist of public debt securities and repos. The secondary government debt market is small. The term structure of domestic public is fragmented, and the yield curve does not reflect market conditions. Further progress needs to be made with the standardization and de-materialization of public securities. The private securities market remains almost nonexistent, due to lack of regulatory oversight, although a</p>	<p>Bank concentration is one of the lowest in the region and in Latin America. The local capital market is small and disconnected from global financial markets. Securities consist mainly of short-term BCH paper and government debt. The high degree of centralization of foreign exchange flows at the central bank derived from surrender requirements has prevented the development of a FX interbank market. The financial system remains reasonable stable and</p>	<p>The financial system in Nicaragua is highly concentrated and dominated by regional banking groups. The banking system enjoys adequate liquidity buffers, bank profitability is recovering, and nonperforming loans were 3 percent of total loans in December 2010. Progress continues to be made in improving bank regulation and risk-based supervision. There is a</p>

Ultimate goals and policy steps	Costa Rica	Dominican Republic	Guatemala	Honduras	Nicaragua
<p>settlement systems. Develop interbank, secondary government debt, and FX markets. Strengthen financial sector surveillance. Deal with insolvent banks. Develop deposit insurance scheme.</p>	<p>The financial sector is dominated by state-owned banks, although the importance of private financial groups is growing steadily. The presence of international financial groups promotes the development of new financial products. The banking sector is sound with adequate capitalization and liquidity levels. As of December 2010, nonperforming loans were below 2 percent of total loans, and were more than fully provisioned for. Bank concentration is moderate for Central America, but higher than in most of the LA5.</p> <p>While strong by regional standards, financial supervision still lags behind international best practices in some aspects. Progress has been made in strengthening capital adequacy requirements, and developing a regulatory framework for risk-based financial supervision, though its implementation has not yet begun. The bills submitted to the legislature in 2007 and 2010 on consolidated supervision, establishment of a deposit insurance system, and strengthening the resolution framework are yet to be approved.</p>	<p>a common custodial arrangement for bonds and the fact that most central bank bonds are not dematerialized (although treasury bonds are). The central bank began issuing dematerialized bonds in December 2010. Custodial arrangements through CEVALDOM (the centralized depository for securities) are being strengthened, which offer the services of settlement, transfer and clearing of operations negotiated in the securities market. CEVALDOM is establishing arrangements with Clearstream (a leading European supplier of post-trading services) so that international agents can enter the market.</p> <p>Financial sector surveillance has improved considerably since the 2003 crisis and seems adequate to deal with banking sector issues. The banking sector is adequately capitalized and liquid. The ratio of NPLs to total loans as of September 2010 was 3.4 percent. Deposit insurance exists.</p> <p>There is a new banking and monetary law. It is in the process of being refined before being sent to Congress for approval in 2011. The main elements include enhancing central bank autonomy and transparency; and establishing the legal underpinnings for risk-based</p>	<p>new securities law is being drafted that would establish a single securities regulator. There is also no proper central depository for securities to ensure trading and settlement is conducted swiftly. Financial depth in terms of bank credit to the private sector compares well to the region.</p> <p>The financial sector is generally sound. Bank capitalization and liquidity indicators are healthy and in December 2010, nonperforming loans were 2.1 percent of total loans. There has been progress in the adoption of new regulations on liquidity and foreign currency credit risk management, there is full provisioning of nonperforming loans except for two small banks representing less than 2 percent of the system), and the regulatory framework for the insurance sector was upgraded in January 2011. However, Congress has not yet approved the amendments to the banking law, submitted in June 2009, which are key to address shortcomings, including the need to reduce risks from offshore operations and connected lending, increase the supervision and enforcement powers of the superintendency, and strengthen bank resolution procedures and the system's safety net. There is a deposit insurance scheme. Bank concentration is moderate for</p>	<p>recently the case of a small insolvent bank was dealt with successfully. By end-December 2010, nonperforming loans reached 4.3 percent of total loans.</p> <p>A more efficient financial infrastructure is needed, including the establishment of a Real Time Gross Settlement System (RTGS), a central security depository to promote a more liquid securities market, and strengthening the code of corporate governance and the bankruptcy framework.</p> <p>Financial sector surveillance is being strengthened by moving towards risk-based supervision and improving supervisory skills, by strengthening the enforcement of capital charges and provisioning levels, and by strengthening consolidated supervision. Honduras has strengthened the financial safety net by replacing a blanket deposit guarantee with limited deposit insurance and strengthened the bank resolution framework. However, the deposit insurance fund needs to be recapitalized.</p>	<p>deposit insurance scheme.</p> <p>However, shallow financial markets hamper the conduct of open market operations. This is associated with high costs arising from lack of competition in the financial market. The bond market also is underdeveloped, with low volumes of operations in the secondary market and low usage of repo operations. Government bond auctions are irregular and the market bids are frequently not accepted. The foreign exchange market is also shallow and dominated by the central bank.</p>

Ultimate goals and policy steps	Costa Rica	Dominican Republic	Guatemala	Honduras	Nicaragua
		supervision and consolidated supervision.	Central America, but higher than most of the LA5.		
<p>Goal: Reasonable methodology for inflation forecasting</p> <p>Steps: Develop technical capacity, data availability, models, surveys, and judgment.</p>	<p>Technical capacity of the BCCR is good. It uses several models to forecast short- and medium-term inflation, including univariate, VAR, factor and pass-through models. The forecasts are then linearly combined. The BCCR has also developed a semi-structural macroeconomic model and publishes research papers on the dynamics of inflation and inflation expectations.</p> <p>The BCCR conducts a monthly survey of inflation expectations of private sector experts and discloses it on the website.</p>	<p>The BCRD has strengthened its technical capacity over the last few years. It has a portfolio of inflation forecasting models, a small-scale macroeconomic model, and has received technical assistance from a number of central banks, including the Bank of Chile to improve its forecasting technology.</p> <p>There is a monthly survey of inflation expectations which is shared with participants of the survey (main economic analysts) but the survey is not published on the website.</p>	<p>Overall technical capacity is good and the central bank has received technical assistance from the IMF for inflation forecasting. The Banguat has a medium-term inflation forecasting model (semi-structural macroeconomic model) and forecasts year-end inflation, including core, for the current and following year. It uses a modified Taylor rule for interest rates.</p> <p>The Banguat conducts and publishes a monthly survey of inflation expectations of private analysts.</p>	<p>The BCH counts with a simple econometric (VEC) model for short-term inflation forecasting. Additional technical capacity for inflation forecasting is needed.</p> <p>There is no survey of inflation expectations.</p>	<p>The capacity to model inflation needs to be strengthened further. So far, the central bank has used ad-hoc models for inflation forecasting and has received TA on modeling inflation.</p> <p>There is no survey on inflation expectations. The crawling peg does provide a strong anchor for inflation expectations.</p>
<p>Goal: Accountability and transparency of the CB.</p> <p>Steps: Publish regular CB reports, monetary data, and CB inflation forecasts.</p>	<p>The BCCR publishes externally audited financial statements.</p> <p>In January the BCCR publishes the annual macroeconomic program with its inflation forecast and monetary policy objectives. Within 30 calendar days of each semester it publishes a report on the implementation of the program and any modifications. The BCCR publishes a monthly statistical summary of economic developments. Twice a year it publishes an inflation report. The website contains detailed data on monetary, financial, real and external sectors.</p> <p>The BoD decisions on exchange rate regime, interest rates, and</p>	<p>The Bank publishes its annual financial statements audited internally and externally.</p> <p>The BCRD publishes a monthly statement explaining the decisions of its policy meeting. It does not publish the minutes of its meetings or the details of its inflation forecasts.</p> <p>It publishes a yearly monetary program with an inflation forecast, quarterly updates, as well as several quarterly reports on the economy on its website. It regularly publishes extensive monetary and economic data on its website.</p> <p>The BCRD governor must report</p>	<p>The Banguat publishes its annual financial statements, which are audited internally and externally.</p> <p>There is extensive data and information on its website, including monthly monetary and economic data. An annual report is published in December, and two other reports are published during the year, all of which contain its inflation forecast and describe monetary policy objectives.</p> <p>The minutes of the policy rate meetings are published 30 days after the meeting. Meetings are convened with the press and academia following the policy</p>	<p>The BCH publishes every year in its website externally audited financial statements.</p> <p>The BCH publishes annually a monetary program that contains macroeconomic projections, including inflation for the current and following year. It also publishes extensive monthly monetary and economic data on its website, though information on monetary policy is more limited. It publishes a press release following a new decision on the policy rate, but not the minutes of the board. The BCH does not prepare an inflation report.</p> <p>The law stipulates that the</p>	<p>The central bank publishes externally audited annual financial statements.</p> <p>The BCN releases a report on a quarterly basis, with a six- to eight-week lag, monitoring the monetary program. It does not publish an inflation forecast.</p> <p>The BCN publishes the decisions adopted concerning monetary policy, but not the minutes of the discussions behind such policy decisions.</p> <p>Various high frequency</p>

Ultimate goals and policy steps	Costa Rica	Dominican Republic	Guatemala	Honduras	Nicaragua
	<p>minimum reserve requirements are published, including on the website, but the minutes are not published.</p> <p>There is no legal provision for the Governor of the BCCR to appear in Congress on a regular basis, although the Governor has to inform Congress about the central bank's operations with treasury bills in the primary markets and its decisions to use nonconventional monetary instruments.</p>	<p>annually to Congress.</p>	<p>rate meeting, and a press statement and power point presentation is released.</p> <p>The head of the central bank must appear twice a year in Congress to report on implemented policies and on its objectives.</p>	<p>board of the central bank will report to Congress once a year about the result of its activities and twice to the executive branch (minister of finance).</p>	<p>data (daily, weekly, month, and annual) are published on the central bank website. They include economic, fiscal, debt, balance of payments, monetary and financial statistics.</p> <p>The BCN governor reports annually to the president of the country. There is no legal provision for his appearance before Congress.</p>

* A survey of the studies of the adoption of IT frameworks reveals the first three conditions (in bold) should be met prior to the adoption of IT in emerging markets (see Freedman and Otker-Robe, 2010). Some degree of exchange rate flexibility is also needed at the outset of IT; most other conditions can be developed afterwards.

Sources: IMF desk economists, central bank websites, and Jácome and Parrado (2007).

Appendix III
Strength of Monetary Policy Index

Criteria and weights (in brackets)	Values	CRI	DOM	GTM	HND	NIC	CHL
Central bank main policy objective (0.30)		0.45	0.30	0.73	0.30	0.35	1.00
1. Clear mandate on price stability ^{1/} (0.5)							
– Price stability primary objective, average inflation < 5%	1.00						1.00
– Price stability primary objective, average inflation < 10%	0.75			0.75			
– Price stability and other objectives, average inflation < 10%	0.50		0.50		0.50	0.50	
– Price stability and other objectives, avg. inflation between (10-20%)	0.40	0.40					
– Objectives do not include price stability, average inflation > 20%	0.00						
2. Exchange rate flexibility ^{2/} (0.5)							
– Free floating	1.00						1.00
– Floating	0.70			0.70			
– Other managed arrangement	0.50	0.50					
– Crawling peg	0.20					0.20	
– Stabilized arrangements	0.10		0.10		0.10		
Absence of fiscal dominance (0.25)		0.61	0.80	0.80	0.35	0.15	1.00
3. Central bank lending or advances to the government (0.6)							
– Advances, direct or indirect lending prohibited, except in secondary markets for monetary policy purposes	1.00		1.00	1.00			1.00
– Permitted to buy government securities in primary market, but effectively not done	0.85	0.85					
– Permitted to buy government securities in primary market	0.50						
– Permitted to provide government advance within limits	0.25				0.25	0.25	
– Allowed without limits	0.00						
4. Public debt to GDP ratios (0.4)							
– Less than 10 percent	1.00						1.00
– Less than 20 percent	0.75						
– Less than 30 percent	0.50		0.50	0.50	0.50		
– Less than 40 percent	0.25	0.25					
– More than 40 percent	0.00					0.00	
Central bank independence (0.20)		0.62	0.47	0.54	0.57	0.44	0.82
5. Who appoints/dismiss the Governor/Board (0.30)							
– Double process (Executive/Legislative)	1.00	1.00					1.00
– The Executive branch appoints	0.50		0.50	0.50	0.50	0.50	
6. Term of office of Governor (0.20)							
– Do not overlap with presidential period	1.00			1.00			1.00
– Overlap with the presidential term	0.66	0.66			0.66	0.66	
– Less than the presidential period	0.33		0.33				
7. Composition of the Board (0.20)							
– Independent professionals	1.00				1.00		1.00
– Includes members of the executive branch	0.66	0.66	0.66				
– Includes members of the executive branch and private interest groups	0.33			0.33		0.33	
8. Central bank capital (0.30)							
– Government should maintain capital integrity, legal provisions in place, and balance sheet healthy	1.00						
– Government should maintain capital integrity, legal provisions in place, but still weak balance sheet	0.40		0.40	0.40			0.40
– Government should maintain capital integrity, legal provisions in place but not effective, and weak balance sheet	0.30				0.30	0.30	
– No legal provisions in place, and weak balance sheet	0.20	0.20					

Appendix III Strength of Monetary Policy Index

Criteria and weights (in brackets)	Values	CRI	DOM	GTM	HND	NIC	CHL
Effectiveness of the policy instrument (0.20)		0.40	0.50	0.50	0.40	0.15	1.00
9. Signaling effect of monetary policy rate (0.50)							
–high transmission of changes in policy rate over other rates	1.00						1.00
–low transmission due to excess liquidity, inoperative interbank market, high dollarization, etc.	0.50	0.50	0.50	0.50	0.50		
–No policy rate in place	0.00					0.00	
10. Degree of monetary instrument development (0.50)							
–Full reliance on money market-type instruments to regulate liquidity	1.00						1.00
–Good liquidity forecasting and partial reliance on rules-based instruments and reliance on open market-type operations	0.50		0.50	0.50			
–Deficient liquidity forecasting reliance on rules-based instruments and partial reliance on open market-type operations	0.30	0.30			0.30	0.30	
Full reliance on rules-based instruments and deficient liquidity forecasting.	0.00						
Transparency and accountability (0.05)		0.71	0.83	0.83	0.71	0.58	1.00
11. Publication of central bank financial statements (0.50)							
–Publishes detailed financial statements externally audited once a year, following International Financial Reporting Standards (IFRS)	1.00						1.00
–Publishes detailed financial statements externally audited once a year	0.66	0.66	0.66	0.66	0.66	0.66	
–Publishes detailed financial statements internally audited once a year	0.33						
–Does not publish detailed financial statements	0.00						
12. Central bank reporting (0.50)							
–The central bank governor must appear in Congress to report on monetary policy, at least once a year	1.00		1.00	1.00			1.00
–The central bank governor must report to the executive and congress, at least once a year	0.75	0.75			0.75		
–Annual report to the executive	0.50					0.50	
–Issues annual report at specific time	0.25						
Index of strength of monetary policy framework		0.53	0.53	0.67	0.41	0.29	0.96

Source: Information to assess the main criteria in Appendix II, The Monetary Policy Framework in CADR Countries.

¹ Average inflation during 2005-10.

² IMF de facto classification of exchange rate arrangements, 2010.

REFERENCES

- Batini, N., K. Kuttner, and D. Laxton, 2005, "Does Inflation Targeting Work in Emerging Markets," *World Economic Outlook, September 2005*, (Washington: International Monetary Fund).
- Canales-Kriljenko, J., L. Jacome, A. Alichí, and I. Luis de Oliveira Lima, 2010, "Weathering the Global Storm: The Benefits of Monetary Policy Reform in the LA5 Countries," IMF Working Paper 10/292 (Washington: International Monetary Fund).
- Cukierman, A., S. Webb, and B. Neyapti, 1992, "Measuring the Independence of Central Banks and Its Effect on Policy Outcomes," *World Bank Economic Review*, vol. 6(3), pages 353-98, September (Oxford: Oxford University Press).
- Coulibaly, D., H. Kempf, 2010, "Does Inflation Targeting decrease Exchange Rate Pass-through in Emerging Countries," Banque de France Working Paper No. 303 (Paris: Banque De France).
- Dabla-Norris, E., and others, 2007, "Modalities of Moving to Inflation Targeting in Armenia and Georgia," IMF Working Paper 07/133 (Washington: International Monetary Fund).
- Delgado, F., and M. Meza, 2011, "Developments in Financial Supervision and the Use of Macroprudential Measures in Central America," IMF Working Paper 11/XXX (unpublished, Washington: International Monetary Fund).
- Frankel, J., 2010, "Monetary Policy in Emerging Markets: A Survey," NBER Working Paper 16125 (Cambridge, MA: National Bureau of Economic Research), Available via the internet: <http://www.nber.org/papers/w16125>.
- Freedman, C., and D. Laxton, 2009, "Why Inflation Targeting," IMF Working paper 09/86 (Washington: International Monetary Fund).
- _____, and I. Otker-Robe, 2009, "Country Experiences with the Introduction and Implementation of Inflation Targeting," IMF Working Paper 09/161 (Washington: International Monetary Fund).
- _____, and I. Otker-Robe, 2010, "Important Elements for Inflation Targeting for Emerging Economies," IMF Working Paper 10/113 (Washington: International Monetary Fund).
- Goldstein, M., 2002, "Managed Floating Plus," *Policy Analyses in International Economics* (Washington, D.C.: Institute for International Economics).

- IMF, 2010, "Annual Report on Exchange Arrangements and Exchange Restrictions, 2010," (Washington: International Monetary Fund).
- Jácome, L., and E. Parrado, 2007a, "Characterizing Monetary Policy", in Desruelle, D. and A. Schipke (2007), *Economic Growth and Integration in Central America*, IMF Occasional Paper No. 257 (Washington: International Monetary Fund).
- _____, and E. Parrado, 2007b, "The Quest for Price Stability in Central America and the Dominican Republic," IMF Working Paper 07/54 (Washington: International Monetary Fund).
- Laurens, B., 2005, *Monetary Policy Implementation at Different Stages of Market Development*, IMF Occasional Paper No. 244 (Washington: International Monetary Fund).
- Leiderman, L., R. Maino, and E. Parrado, 2006, "Inflation Targeting in Dollarized Economies," IMF Working Paper 06/157 (Washington: International Monetary Fund).
- Medina Cas, S., A. Carrión-Menéndez, and F. Frantischek, 2011, "The Policy Interest-Rate Pass-Through in Central America," IMF Working Paper 11/240 (Washington: International Monetary Fund).
- Mishkin, F. and M. Savastano, 2000, "Monetary policy Strategies for Latin America," "NBER Working Paper No. 7617 (Cambridge, Massachusetts: National Bureau of Economic Research).
- _____, 2011, "Monetary Policy Strategy: Lessons from the Crisis," NBER Working Paper 16755 (Cambridge, MA: National Bureau of Economic Research), Available via the internet: <http://www.nber.org/papers/w16755>.
- Piñon, Marco, 2010, "Tendencias Recientes en los Marcos de Política Monetaria y Cambiaría en América Latina," in *Recesión con estabilidad: Realineando la senda hacia el futuro*, ed. by L. Mesalles and O. Céspedes, (Academia de Centroamérica).
- Roger, S., 2009, "Inflation Targeting at 20: Achievements and Challenges," IMF Working Paper 09/236 (Washington: International Monetary Fund).
- _____, J. Restrepo, and C. Garcia, 2009, "Hybrid Inflation Targeting Regimes," IMF Working Paper 09/234 (Washington: International Monetary Fund).