

**CENTRAL BANKING
IN LATIN AMERICA: CHANGES,
ACHIEVEMENTS, CHALLENGES**

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Lecture prepared for the Fifth High-Level
Seminar of the Eurosystem and Latin
American Central Banks

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CENTRAL BANKING IN LATIN AMERICA: CHANGES, ACHIEVEMENTS, CHALLENGES ^(*)

Klaus Schmidt-Hebbel ^()**

CATHOLIC UNIVERSITY OF CHILE

Introduced by Javier Aríztegui

BANCO DE ESPAÑA

Discussion by Agustín Carstens

BANCO DE MÉXICO

Discussion by Athanasios Orphanides

CENTRAL BANK OF CYPRUS

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Introduction by Javier Aríztegui, Deputy Governor, Banco de España

The V High-Level Seminar of Eurosystem and Latin American Central Banks, held in Madrid last December was a special occasion to gather the governors of the euro area and Latin America for a fruitful exchange of views on the economic and financial situation of both areas. It was also a unique opportunity to assess, with the benefit of some hindsight, the evolution and performance of Latin American central banks prior to, within and after the crisis. With this purpose in mind, Klaus Schmidt-Hebbel was commissioned to write an essay on the issue, to be presented in a Lecture previous to the Seminar. Professor Schmidt-Hebbel is one of the leading economists in the region and one of the most reputed experts in monetary economics and, in particular, in the analysis of inflation targeting. He has worked as Chief of the Economic Research Division in the Central Bank of Chile for 12 years and was Chief Economist of the OECD between 2008 and 2009.

Taking advantage of the presence of central bank governors of the two regions, a discussion was scheduled after the lecture, led by two prominent discussants, which provided a view from the trenches of actual policymaking. Agustín Carstens, Governor of the Banco de México and Athanasios Orphanides, Governor of the Central Bank of Cyprus. Their contributions are also included in this publication.*

The lecture and the discussions provide an in-depth overview of the current state of the art in central banking in Latin America. The region has a history of recurrent financial crises that took a large toll on economic growth and fuelled social unrest. Frequently, these crises were triggered by external shocks, but they unveiled severe macroeconomic and financial weaknesses, leading to banking crises in some cases. Financial crises, thus, became a primary source of macroeconomic instability, a drag for economic development and a reason for social frustration.

Fortunately, politicians and policymakers have in the last decades learned from previous mistakes, as the essay describes in detail, and, consequently, in 2007 Latin America was better prepared to cope with real and financial shocks. Over time, most countries strengthened their macroeconomic fundamentals and built up buffer mechanisms to mitigate the negative effects of frequent exogenous shocks. They built up a sound, well regulated and supervised banking sector, dedicated to retail banking, combining international and domestic firms. These factors have proven effective to deal with the current economic and financial crisis.

In the area of monetary policy the progress has also been noteworthy and with its own specificities. Most Latin American countries shifted to flexible exchange rates and inflation targeting regimes but, in contrast with advanced economies, they also significantly increased their international reserves and applied banking requirements and other measures to stem financial excesses, including in some extreme cases, some capital controls. These two elements were seen at the time as transitional devices, as the new regime took hold and financial development deepened. However, with the experience provided by the crisis and the concern developed by central banks for preserving financial stability, that approach appears

* The discussions are based on the version the paper given in the Lecture. This version has subsequently been revised by the author, so that some comments might not apply to this new version (Note of the Editor).

now to incorporate some virtues and a high degree of pragmatism. Indeed, the success in weathering the financial storm in Latin America is outstanding, and shows the benefits of learning the right lessons from previous financial crisis. It comes as a coincidence that the year that Latin American countries start to celebrate their bicentenaries of independence, the region seems to have achieved its emancipation from a turbulent financial past, too.

However, new challenges arise for Latin American central banks, as Professor Schmidt-Hebbel forcefully argues in his essay. Overall, in my view, the main one is preserving the recent progress in terms of monetary policymaking as the global economy adapts to a new and uncertain context. This document provides some key guidelines to succeed in this goal.

Abstract

Lecture. CENTRAL BANKING IN LATIN AMERICA: CHANGES, ACHIEVEMENTS, CHALLENGES by Klaus Schmidt-Hebbel

Latin America's central banks were strengthened in the 1990s by independence laws, adoption of new policy regimes (foremost inflation targeting), and more transparent policy decisions bound by ex-ante rules and ex-post accountability. Central bank modernization – supported by significant fiscal adjustment and financial-sector strengthening – led most Latin American countries to converge to one-digit inflation rates and contributed to higher and more stable growth than in the past. Yet the region's new policy framework was put to severe testing by the global financial crisis and recession. Quick and innovative policy responses by the region's central banks helped domestic financial systems and the real economy to resist well the massive financial and real consequences of the banking crisis and recession in industrial countries. Empirical evidence reported here shows that the central banks' new policy framework and policy response during the crisis dampened significantly the amplitude of the recession. Having weathered well the global financial crisis and recession, now Latin America's central banks face a large array of policy challenges, which are reviewed in this lecture. Some are common to central banks in industrial and emerging economies, derived from the crisis itself and the issues it poses for improving the role of central banks in attaining more effectively both monetary and financial stability. Other challenges are idiosyncratic to emerging economies in the region (and elsewhere) that are facing renewed growth, high commodity prices, large capital inflows, and real exchange-rate appreciation.

JEL Classification: E52, E58, O54.

Keywords: Monetary Policy, Central Banks, Latin America.

1 Introduction

Central banks evolve over time. A generation ago the conduct of monetary, exchange-rate, and financial stability policies in most central banks was opaque, discretionary, and unpredictable, not bound by well-defined policy regimes, institutions, and rules. Many central banks – particularly those in developing countries – lacked independence from governments and were little more than money printing offices for governments keen to finance their perennial deficits with inflation taxation.

Slowly since the 1980s, and more quickly since the 1990s and 2000s, central banks worldwide have been strengthened by independence laws, adoption of new policy regimes (like inflation targeting), and more transparent policy decisions that are bound by ex-ante rules and ex-post accountability. This has been the result of a growing consensus among policymakers and academics that rules are better than discretion – both for democratic accountability and economic efficiency. Certainly the latter objective has been intellectually supported by modern macroeconomic theory shaped by the rational expectations revolution, the Lucas critique [Lucas (1976)], and the arguments in support of policy rules over discretion [Kydland and Prescott (1977), Barro and Gordon (1983)].

Nowhere has been this change more profound than in Latin America (LA). After decades of money-financed government deficits, high and hyper-inflation episodes, and recurring banking and balance-of-payments crisis, central banks were granted de jure or de facto independence. This enabled the region's central banks to adopt policy regimes that are at the international best-practice frontier, supportive of effective policy-making in pursuance of well-defined objectives of monetary and financial stability. Central bank modernization was supported by significant fiscal adjustment and financial-sector strengthening through improved regulation and supervision. This led most LA countries to converge to one-digit inflation rates during the last decade and contributed to higher and more stable growth than in the past. Hence LA took active part in the world's *Great Moderation* experience.

Yet the region's new policy framework was put to severe testing by the global financial crisis and recession, which grew out of many industrial countries' excesses incurred during the *Great Moderation* period. Surprising to many observers, LA's domestic financial system and international payments position resisted very well the massive financial and real consequences of banking crises and recessions in industrial countries. As opposed to past experiences, no LA economy went through a financial crisis. The intensity of LA's recession was limited and short-lived, followed by strong recovery. Yet it is precisely this recovery, fueled by high commodity prices and large capital flows, which poses risks for the region, implying new challenges for its central banks. The latter are added to the challenges posed by the global crisis to all central banks in the world in their pursuit of monetary and financial stability.

In this lecture I review the institutional changes and stabilization achievements of LA's central banks and discuss key policy challenges faced by the region's central banks today. Section 2 looks back at past reforms in central banks' institutional set-up, regimes, and policies. This paves the way for assessing macroeconomic and policy achievements in section 3. In section 4 I describe the response of central banks to the 2008-09 global financial

crisis and recession, and assess quantitatively the contribution of central bank policies to dampen the recessionary impact in Latin America. I review the double set of challenges posed by the current juncture to the region's central banks (and governments) in section 5. Concluding remarks close the paper.

2 Looking back at the Reforms: Deep Changes in Central Banking Institutions, Regimes, and Policies, 1990-2010

2.1 Central bank independence and transparency

From their beginnings at different dates in the twentieth century and until the 1990s, LA's central banks lacked independence from governments, which resulted in high inflation and recurring banking crises. Central bank reserves were often under attack as a result of policy inconsistency arising from exchange-rate pegs and high inflation.

The world-wide rise of monetarism and the rational-expectations revolution of the 1970s and the 1980s, combined with the region's growing revulsion against continuing high and hyper-inflation in the late 1980s, led to deep central bank reforms in the 1990s – a clear example of “crises that beget reforms” [Bruno and Easterly (1996)]. Reforms were anchored in new central bank laws adopted between 1989 and 2002 (Table 2.1). The new laws gave banks a clear mandate, focused on currency or price stability; granted banks political independence in regime choice and policy design; provided operational autonomy to banks; and made banks accountable to congress and the general public [Carstens and Jácome (2005)].

Table 2.1: New Central Bank Laws in Latin America, 1989-2002

Country	Date of New Laws	Country	Date of New Laws
Chile	1989	Mexico	1993
El Salvador	1991	Bolivia	1995
Argentina	1992 and 2002	Costa Rica	1995
Colombia	1992	Uruguay	1995
Nicaragua	1992 and 1999	Paraguay	1995
Venezuela	1992, 1999, and 2002	Honduras	1996 and 2004
Ecuador	1992 and 1998	Guatemala	2001
Peru	1993	Dominican Republic	2002

Source: Carstens and Jácome (2005).

How much was central bank independence (CBI) strengthened by the new laws? I follow the previous literature on CBI [Cukierman (1992), Cukierman et al. (2002), Carstens and Jácome (2005), Jácome and Vázquez (2005)], distinguishing between political independence (an aggregate index for different measures of CB board independence and focus on price stability as key policy objective) and economic independence (independence in policy formulation and conduct, and on central bank financing from government). LA central banks show major improvements in both dimensions since the 1990s.¹ Inflation targeting (IT) central banks – which lagged behind non-IT central banks in both measures of independence in 1984-1992, before they adopted new laws and IT – attained higher levels of independence in 1993-2005, in comparison to non-IT countries (Figure 2.1).

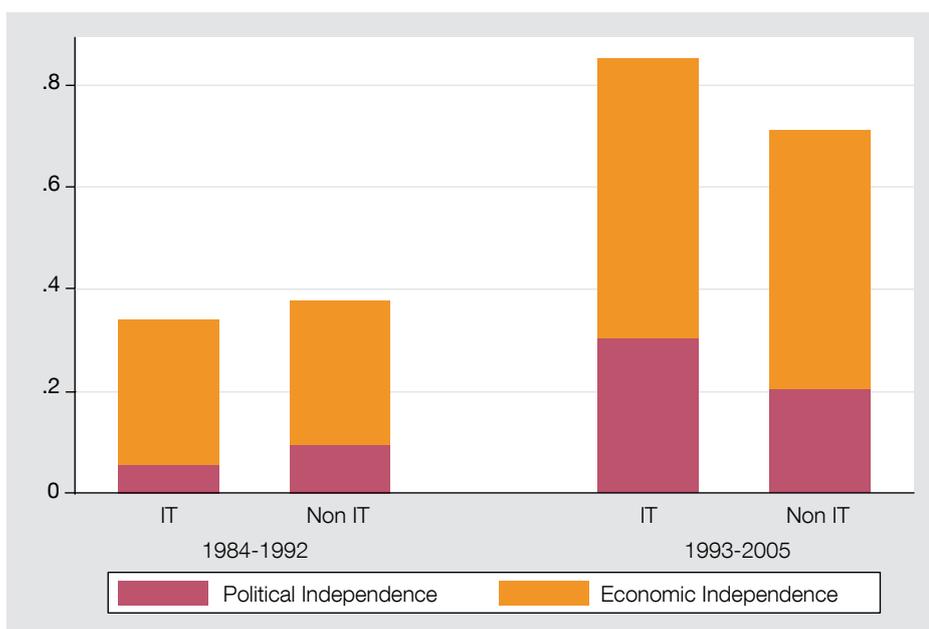
With stronger legal independence granted to central banks came stronger legal requirements of accountability and transparency. Supported by the new laws,

1. I use the data assembled by Jácome and Vázquez (2005), who extend and apply the Cukierman (1992) CBI measure to LA's central banks.

LA's central banks have improved significantly their accountability and transparency requirements since the 1990s (Figure 2.2).

How transparent have central banks become in practice, as a result of both legal and de facto changes in central bank policy and communications practice? Based on Dincer and Eichengreen's (2010) world database on central bank transparency, Latin American central banks exhibit steady improvements in aggregate transparency during 1998-2006 (Figure 2.3). LA's five IT central banks exhibit transparency levels that are significantly higher than those observed in LA's non-IT central banks and other emerging economies' central banks.

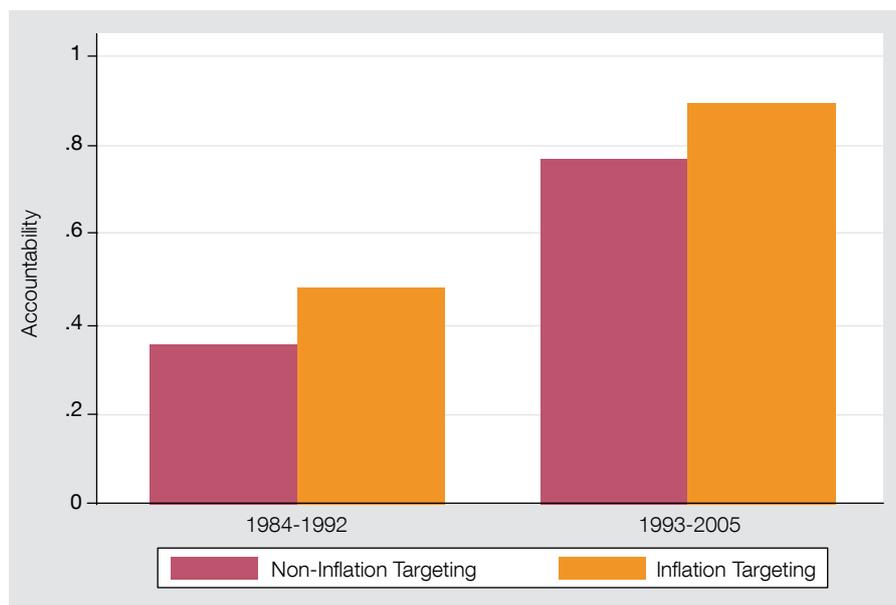
Figure 2.1: Central Bank Independence Measures for Inflation-Targeting and Non Inflation- Targeting Countries in Latin America, 1984-1992 and 1993-2005



Note: IT countries comprise Chile, Colombia, Mexico, and Peru. (No data is available for Brazil covering 1984-1992). Non-IT countries comprise Argentina, Bolivia, Costa Rica, El Salvador, Ecuador, Honduras, Nicaragua, Paraguay, Uruguay, and Venezuela.

Source: Jácome and Vázquez (2005).

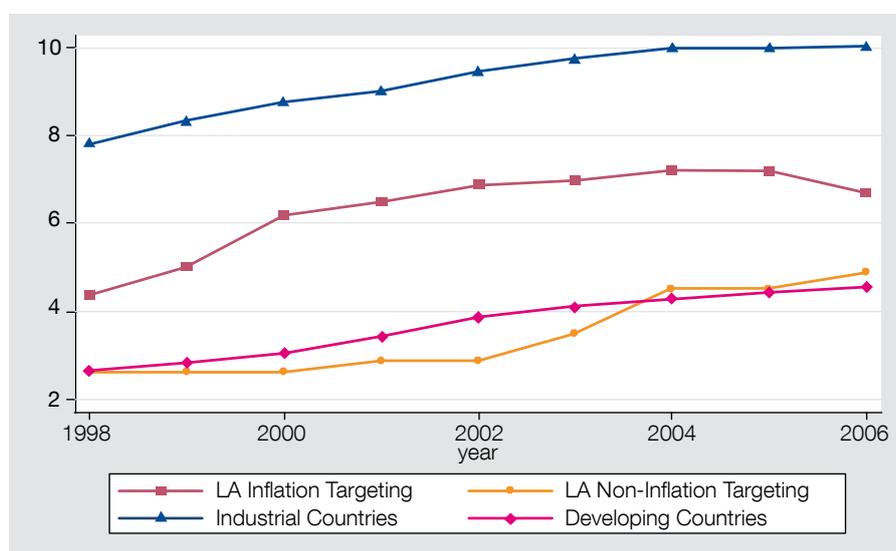
Figure 2.2: Central Bank Legal Accountability and Transparency Measure for Inflation-Targeting and Non Inflation-Targeting Countries in Latin America, 1984-1992 and 1993-2005



Note: IT countries comprise Chile, Colombia, Mexico, and Peru. (No data is available for Brazil covering 1984-1992). Non-IT countries comprise Argentina, Bolivia, Costa Rica, El Salvador, Ecuador, Honduras, Nicaragua, Paraguay, Uruguay, and Venezuela.

Source: Jácome and Vázquez (2005).

Figure 2.3: Central Bank Transparency Measures by Country Groups, 1998-2006



Note: LA IT countries comprise Chile, Colombia, Mexico, Peru, and Brazil. LA Non IT countries comprise Argentina, El Salvador, Guatemala, and Uruguay. The other two groups are comprised by 13 industrial countries and 78 developing countries.

Source: Dincer and Eichengreen (2010).

Summary information on central bank measures of de jure independence, de jure accountability and transparency, and de facto transparency is reported for individual countries and country groups in Table 2.2. The data reflect relatively high levels of independence and transparency attained by the region's central banks in recent years. IT central banks exhibit generally higher levels of both measures than non-IT central banks in the region.

Table 2.2: Measures of Central Bank Independence, Accountability, and Transparency in Latin America

	De Jure Independence (1993-2005)	De Jure Accountability and Transparency (1993-2005)	De facto Transparency (2006)
Latin America	0.74	0.80	6.0
Inflation-Targeting Countries	0.79	0.85	6.7
Brazil	0.544	0.688	7.5
Chile	0.886	1	7.5
Colombia	0.822	0.938	5
Mexico	0.807	0.938	5.5
Peru	0.886	0.688	8
Non Inflation-Targeting Countries	0.71	0.77	4.5
Argentina	0.734	1	5.5
Bolivia	0.864	0.875	-
Costa Rica	0.629	0.688	-
Ecuador	0.748	0.313	-
El Salvador	0.795	0.750	3
Honduras	0.647	0.938	-
Nicaragua	0.574	0.813	-
Paraguay	0.718	0.750	-
Uruguay	0.652	0.688	5
Venezuela	0.738	0.875	-

Sources: Jácome and Vázquez (2005) for de jure independence and accountability; Dincer and Eichengreen (2008) for de facto transparency.

Table 2.3: Exchange-Rate and Monetary Regimes in Latin America, 2008

Exchange Rate Regime	Monetary Policy Framework			
	Exchange Rate Anchor (US\$)	Monetary Aggregate	Inflation Targeting	Other
No separate legal tender	Ecuador El Salvador Panama			
Conventional Fixed Peg	Argentina Honduras Venezuela	Argentina		
Crawling Peg	Bolivia Nicaragua			
Crawling Band	Costa Rica			
Managed Floating with no predetermined Path for Exchange Rate			Colombia Guatemala Peru Uruguay	Dominican Republic Paraguay
Independently Floating			Brazil Chile Mexico	

Source: International Monetary Fund.

2.2 Exchange-Rate and Monetary Regimes

Latin America is the region that exemplifies best the two-corner hypothesis in exchange-rate (ER) regimes, i.e., the shift from intermediate regimes toward fixed and floating ER systems. While intermediate regimes were prevalent in the 1980s and 1990s, most countries migrated toward pegs or floats in the late 1990s. According to the IMF, as of 2008 a majority of LA countries had in place a managed float or an independent float, and a smaller number had adopted either a fixed peg to the US dollar or had replaced their currency by the latter currency (Table 2.3). Most countries with a managed or independent float are IT countries – an obvious pairing as full-fledged IT is inconsistent with any anchor other than the inflation target.

Among floating ER regimes, managed floats are prevalent in the region – only Chile and Mexico come closest to clean floats. “Fear to floating” – reflected in frequent ER market interventions – is still dominant in the region, and responds to different policy objectives: building up higher liquidity over time, avoiding financial turbulence or crisis derived from large ER depreciation in countries that are highly dollarized or with significant dollar-denominated net foreign debt, minimizing loss of competitiveness as a result of significant real ER appreciation,² reducing ER pass-through to inflation, and pricking ER bubbles or large deviations of market ERs from fundamentals-driven equilibrium ER levels. In the absence of deep and healthy domestic financial markets (including well-developed ER derivative markets), well-anchored inflation expectations, and strong domestic counter-cyclical macroeconomic and macro-prudential policies, ER interventions could represent a second-best policy instrument to counter-act market and policy failures that are behind the policy objectives of interventions that I have listed above. Yet the possible (but often elusive) benefits of ER interventions have to be carefully balanced against their costs, derived from the limitations that interventions impose on ER flexibility and full monetary independence.

ER interventions by central banks in the region are of two types. Opaque interventions with little ex ante communication about intervention objectives, instruments, amounts, and periods are prevalent. The exception is Chile, where interventions are pre-announced by the central bank, which communicates the period and amount of its relatively exceptional interventions. A large body of empirical research on ER interventions by central banks in the world shows scant evidence about their effectiveness. Some evidence for Chile suggests that intervention announcements (as opposed to actual interventions) has positive but short-lived effects on ER levels, suggesting that they could break episodes of non-fundamentals driven appreciation or depreciation [Tapia and Tokman (2004), De Gregorio and Tokman (2004)].

Now I turn to monetary regimes. Inflation targets were generally adopted in the 1990s and 2000s once LA central banks had shifted from fixed or intermediate ER regimes to

2. Regarding the relation between growth and the real ER (or competitiveness), ER policy should acknowledge the bi-causal relation between both variables: growth contributes to equilibrium real ER appreciation while disequilibrium real ER appreciation harms growth. Trend real ER appreciation is a likely and unavoidable by-product of high growth, consistent with the Harrod-Balassa-Samuelson (HBS) hypothesis. Successful emerging economies – those that are on a sustained path of convergence toward industrial-country pre capita income levels – should be prepared to “suffer” from trend real ER appreciation. Consistent with the HBS hypothesis, their relative prices of traded goods will rise in reflection of their large relative productivity gains in traded-goods- (export-) producing sectors. However, as is the case of any asset price, ERs may be subject to bubbles, i.e., to periods of significant (and rising) separation of market ERs from fundamentals-driven equilibrium ERs. Extended and significant disequilibrium real ER appreciation may harm growth, as shown by international panel-data studies [Aguirre and Calderón (2005) and Elbadawi, Kaltani, and Schmidt-Hebbel (2008)]. Although equilibrium ERs are not observable, central banks are called to assess if significant ER disequilibrium arises when considering ER interventions.

floats. Yet, as opposed to industrial countries but like in many other emerging economies, all LA central banks started IT by pre-committing to annual target levels on a declining schedule toward stationary target levels. During this phase of “converging targets”, central banks used IT as an instrument to anchor inflation expectations to forward-looking target levels, bringing inflation gradually down. At low single-digit levels of actual inflation, central banks adopted stationary target levels. During the convergence period, IT central banks invested heavily in developing their IT framework, moving gradually from partial to full-fledged IT, with all the bells and whistles of international best-practice IT. This involved modernizing monetary policy operations, improving analytical and forecasting capabilities, revamping policy decision procedures, and raising transparency, communications, and accountability of central bank work and policy decisions. Since circa 2000, IT central banks publish regular inflation reports. In gradually improving their IT framework, LA inflation central banks were not different from those in other regions, including industrial-country central banks, which also shifted gradually to full-fledged IT, several years after its adoption [Batini and Laxton (2007)].

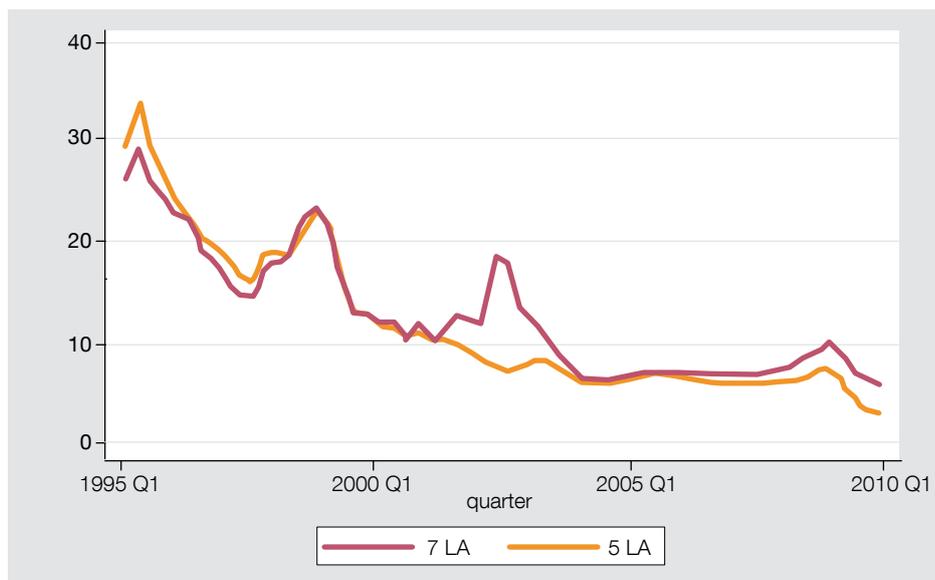
LA’s central banks modernized radically their operational framework for monetary policy since the 1990s. This was the result of their policy objective set on monetary stability and their attempt to close the gap with industrial countries’ best policy practice. The new framework was centered on the control of systemic banks’ liquidity, the use of a short-term interest rate or a quantity variable as the main policy instrument, and the adoption of more transparent policy rules and policy decision procedures [Carstens and Jácome (2005)]. The latter framework has been fully adopted by IT central banks – and to a lesser degree by non-IT central banks in the region – due to the larger dependence of the success of IT on a well-structured and transparent monetary framework.

All five major IT countries in LA – and several non-IT countries – use an overnight benchmark or monetary policy rate as their operational variable. They engage in over-night repo and reverse repo operations to steer the overnight inter-bank market rate close to the monetary policy rate. In contrast, many non-IT countries use a quantity variable as their key operational variable, such as base money or net domestic assets.

Short-term nominal interest rates exhibit a strong downward trend in LA’s major economies since the early 1990s, reflecting declining inflation and lower real interest rates due to successful stabilization (Figure 2.4).³ The shift from fixed or intermediate to more flexible ER regimes and better-anchored inflation expectations paved the way for a radical change in central bank response to international and domestic crises. While under the old regime central banks raised interest rates in response to adverse foreign and domestic shocks, defending non-flexible exchange rates (e.g., in 1998), many central banks were able to reduce interest rates ten years later, in response to the global crisis.

3. Much of the regional data presented below corresponds to unweighted averages for the seven major LA economies (Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela) and for the five IT countries among the latter.

Figure 2.4: Short-Term Nominal Interest Rate in Latin America, 1990-2009 (%)



Note: 5 LA: average for Brazil, Chile, Colombia, Mexico, and Peru.

7 LA: average for 5 LA, Argentina, and Venezuela.

Source: Corbo and Schmidt-Hebbel (2010).

2.3 Financial development, integration, and stability

After the 1982-1985 Latin American debt and banking crisis, most countries revamped deeply commercial bank regulation and supervision, adopting strong banking laws that limit risk taking and lifting restrictions on foreign investment in banking that led to increased domestic competition. Supported further by capital market and pension system reforms, macroeconomic stabilization, and overall development, banking systems matured and developed. Financial intermediation and financial system depth grew very significantly during the past two decades, while banking system health was improved. When the global financial crisis hit in 2008, regulatory risk-weighted capital to asset ratios stood at values ranging from 11.9% (Peru) to 18.3% (Brazil), roughly twice the ratios observed in industrial countries. Central banks contributed to financial stability in two ways: by exercising or sharing bank regulation and supervision with governments and by monitoring domestic financial stability, as reflected in their regular financial stability reports, published since the mid-2000s.

In the aftermath of the 1997-98 Asian Crisis and together with adoption of flexible ER regimes, many central banks supported their countries' international financial integration by ditching controls on capital outflows and inflows that had been in place for many decades until the 1990s. This contributed to higher international financial integration in the seven major economies. Their average sum of external asset and liability ratios to GDP rose from close to 90% in the 1990s to close to 120% in the 2000s (Table 2.5). A growing body of cross-country research shows that higher financial openness and integration into world capital markets raises long-term growth and lowers long-term growth volatility [Calderón et al. (2006, 2008)] – and LA is not an exception from this world pattern.

Table 2.4: Banks' Regulatory Capital to Risk-Weighted Asset Ratios in Latin America, 2005-2010 (%)

	Bank Regulatory Capital to Risk-Weighted Assets (In Percent)						Average
	2005	2006	2007	2008	2009	2010	
Average	15.4	15.0	14.6	14.7	15.4	15.6	15.1
Argentina	15.3	16.8	16.9	16.8	18.7	18.4	17.2
Bolivia	14.7	13.3	12.6	13.7	13.3	12.3	13.3
Brazil	17.9	18.9	18.7	18.3	18.8	17.5	18.4
Chile	13.0	12.5	12.2	12.5	14.3	13.6	13.0
Colombia	14.7	13.1	13.6	13.4	12.1	12.8	13.3
Costa Rica	18.0	18.4	15.7	15.1	15.9	16.4	16.6
Dominican Republic	12.5	12.4	13.0	13.4	14.5	14.5	13.4
Ecuador	11.6	12.0	12.5	13.0	13.8	13.1	12.7
El Salvador	13.5	13.8	13.8	14.5	16.2	16.9	14.8
Guatemala	13.7	13.6	13.8	13.5	15.4	15.1	14.2
Mexico	14.3	16.1	15.9	15.3	15.9	16.4	15.7
Panama	16.8	15.8	14.5	14.8	16.4	16.6	15.8
Paraguay	20.4	20.1	16.8	18.2	16.4	18.0	18.3
Peru	12.0	12.5	12.1	11.9	13.5	14.3	12.7
Uruguay	22.7	16.9	17.8	16.7	17.0	18.5	18.3
Venezuela	15.5	14.3	12.9	13.4	13.9	15.5	14.3

Source: IMF (2010) Global Financial Stability Report, cited in Powell (2010).

However, full financial integration may raise domestic vulnerability to large swings in capital flows, impairing macroeconomic and financial stability in the absence of well-regulated, sound domestic financial markets and effective counter-cyclical policies. Therefore controls on capital inflows are sometimes adopted and justified as a second-best policy choice when first-best solutions are not available, and when the stabilizing effects of capital controls are perceived to outweigh the costs derived from the financial distortions they imply. However, a significant literature on the effectiveness and the costs of capital controls imposed in the 1990s by emerging economies is largely inconclusive [e.g., Ostry et al. (2010)].⁴ Nonetheless, an intense policy discussion on the merits of capital controls in emerging economies is resurfacing, and some countries that face large capital inflows have already adopted or are considering adoption of controls, as I will discuss below in the region's context.

Table 2.5: External Asset and Liability Ratios to GDP in Latin America, 1990-2009 (%)

	1990-1994	1995-1999	2000-2004	2005-2009
Argentina	78.5	103.8	176.5	147.6
Brazil	45.8	53.22	86.8	82.9
Chile	119.0	126.9	192.1	184.6
Colombia	51.7	61.6	87.1	79.0
Mexico	63.0	81.8	70.3	79.5
Peru	98.0	100.9	103.8	102.5
Venezuela	156.9	131.1	145.5	122.0
Average	87.6	94.2	123.1	114.0

Source: Corbo and Schmidt-Hebbel (2010).

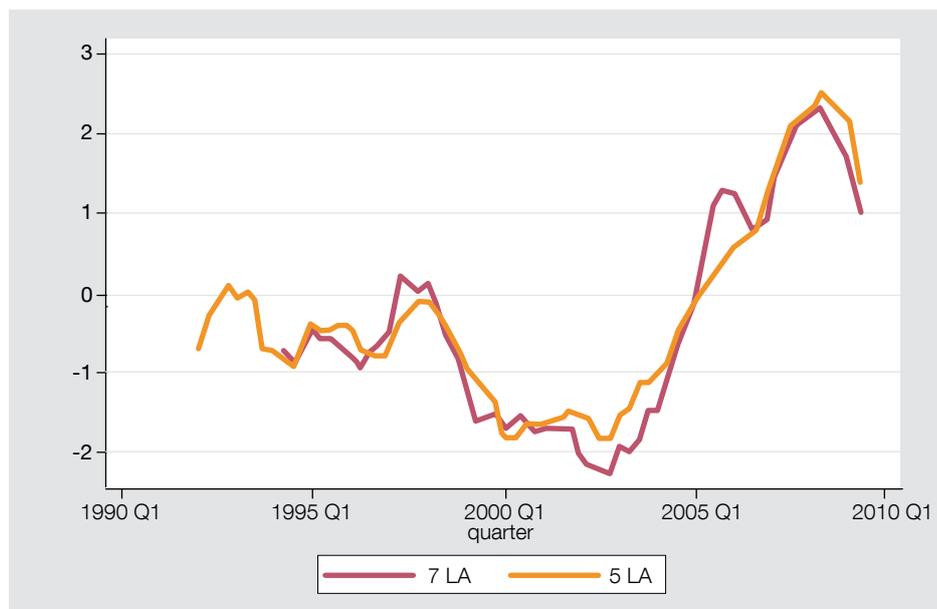
4. The most researched country experience is Chile's 1991-1999 unremunerated reserve requirement (URR) that taxed foreign loans and portfolio inflows at an implicit rate that declined asymptotically with length of stay or maturity of the corresponding financial transaction. A majority of circa 15 empirical studies concluded that the URR did neither reduce aggregate capital inflows nor affect the real ER significantly but did alter the composition of inflows toward longer maturities. This came at the cost of higher short-term domestic interest rates, more difficult access of smaller firms to external financing, and partial evasion and elusion of controls [Gallego et al. (2002), Ostry et al. (2010)].

3 Central Bank Policies and Macroeconomic Achievements, 1990-2009

The 1997-98 Asian Crisis was associated to a subsequent recession in LA. Yet the latter crisis was also a well-used opportunity in the region, triggering significant changes in policy regimes. Many governments and central banks invested in reforms that made their economies more resilient to external shocks.⁵ In fact, the 2008-09 Global Financial Crisis and recession would be the first test for LA's new policy regimes, as documented in the next section.

Fiscal positions were strengthened since the early 2000s. Since the start of the commodity boom in the mid-2000s, the region's seven major economies recorded systematic fiscal surpluses and their fiscal policy was less pro-cyclical than in the past (Figure 3.1). Aggregate public and private-sector prudence during the commodity boom was reflected in current-account surpluses and a corresponding improvement in net external asset positions (Figure 3.2).

Figure 3.1: Fiscal Balance Ratios to GDP in Latin America, 1990-2009 (%)



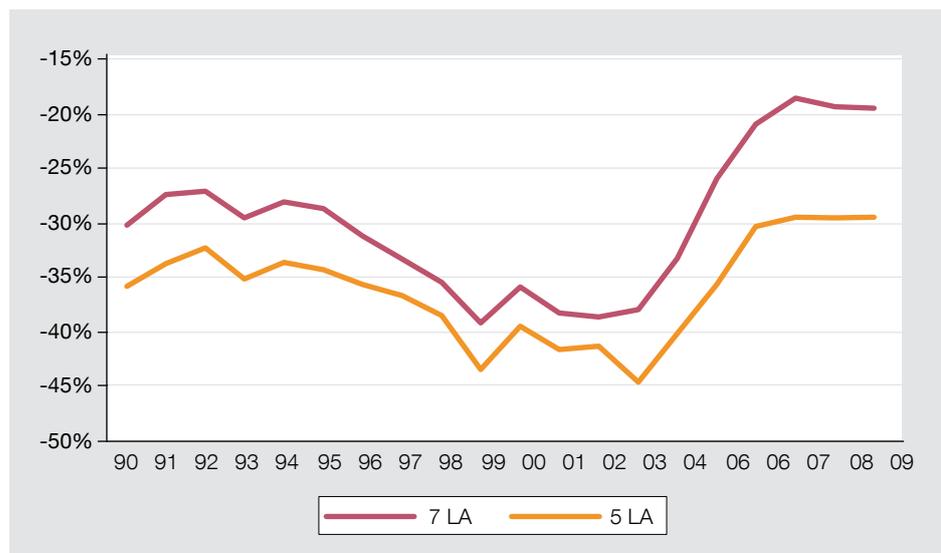
Note: 5 LA: average for Brazil, Chile, Colombia, Mexico, and Peru.

7 LA: average for 5 LA, Argentina, and Venezuela.

Source: Corbo and Schmidt-Hebbel (2010).

5. Domestic crises in Brazil (1998-99) and Argentina (2001-02) reinforced the policy changes in these countries.

Figure 3.2: Net External Asset Ratio to GDP in Latin America, 1990-2009 (%)



Note: 5 LA: average for Brazil, Chile, Colombia, Mexico, and Peru.

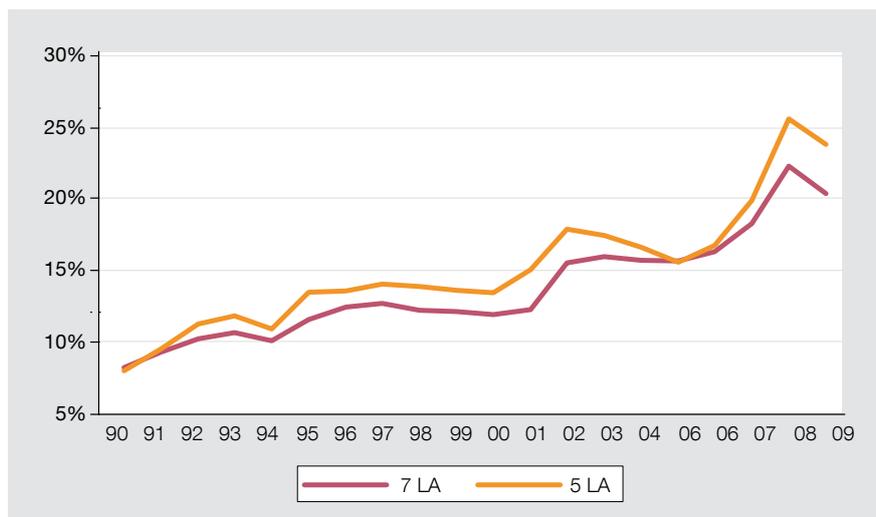
7 LA: average for 5 LA, Argentina, and Venezuela.

Source: Corbo and Schmidt-Hebbel (2010).

Supported by fiscal adjustment, central banks improved their monetary, ER and financial policy framework. Starting from very low levels of international liquidity, many central banks built up international reserves through systematic interventions. International reserves ratios to GDP doubled in the major economies (Figure 3.3). At the same time, as discussed above, a significant number of central banks adopted floating ER regimes (mostly of the managed sort), providing them with a price-adjustment mechanism and more monetary policy independence, which they lacked under their previous regimes of fixed or intermediate ERs.

LA is a paramount example of the world's *Great Moderation* reflected in attaining low inflation and lower volatility of inflation and output. The region's conquest of inflation is reflected in convergence to low single-digit inflation rates in most economies during the 2000s (Argentina and Venezuela are two exceptions) – a quantum shift from the region's past characterized by perennial high inflation and recurrent hyper-inflation episodes (Figure 3.4).

Figure 3.3: International Reserve Ratio to GDP in Latin America, 1990-2009 (%)

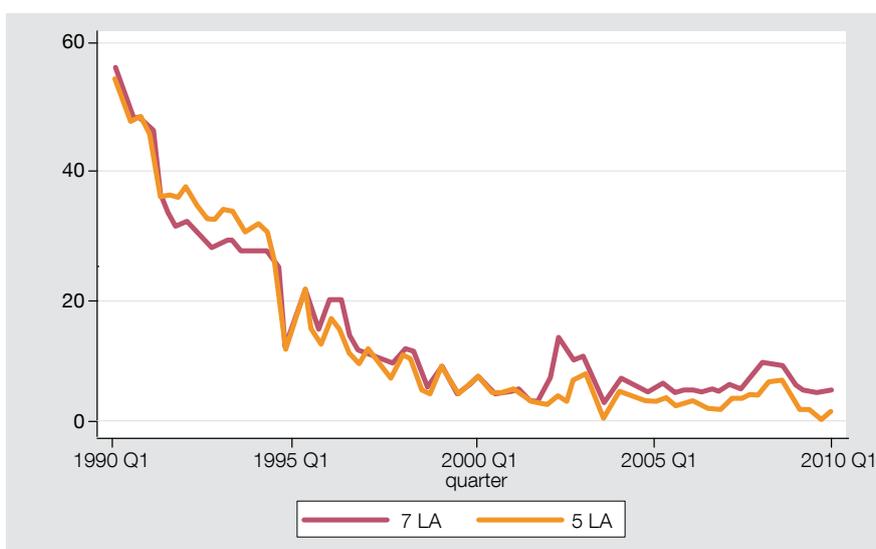


Note: 5 LA: average for Brazil, Chile, Colombia, Mexico, and Peru.

7 LA: average for 5 LA, Argentina, and Venezuela.

Source: Corbo and Schmidt-Hebbel (2010).

Figure 3.4: Inflation Rate in Latin America, 1990-2009 (%)



Note: 5 LA: average for Brazil, Chile, Colombia, Mexico, and Peru.

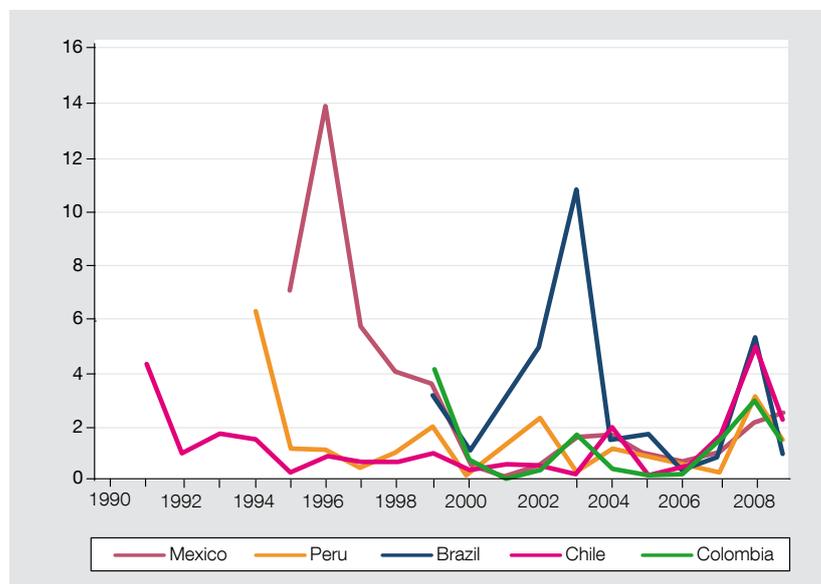
7 LA: average for 5 LA, Argentina, and Venezuela.

Source: Corbo and Schmidt-Hebbel (2010).

The decline in inflation rates and inflation volatility has been particularly large in IT countries. Annual absolute inflation deviations from official target levels exhibit a downward trend since the start of IT in Brazil, Chile, Colombia, Mexico, and Peru, except for the 2008-09 largely imported inflation-deflation episode (Figure 3.5). This trend decline in inflation misses reflects the growing success of IT central banks in controlling inflation volatility. How does the region's IT success in minimizing inflation deviations from targets compare to IT central banks

in other regions? The five countries' average annual absolute inflation deviation from target levels is 2.0%, which is higher than the eight industrial-country IT central banks average deviation of 1.3% but lower than the 2.7% average deviation recorded by all other emerging economies that have adopted IT (Table 3.1).

Figure 3.5: Average Annual Absolute Inflation Deviations from Inflation Targets in Latin America (%), from Start of Inflation Targeting to 2009-IV (%)



Note: Inflation deviations are computed as absolute deviations of annual (year-on-year) quarterly inflation rates from official inflation targets, from the start of inflation targeting in each country through the last quarter of 2009. Country-group averages are computed as simple averages of all countries in each group.

Source: Schmidt-Hebbel 2010 (b).

Table 3.1: Average Annual Absolute Inflation Deviations from Inflation Targets in Latin America and other Regions, from Start of Inflation Targeting to 2009 (%)

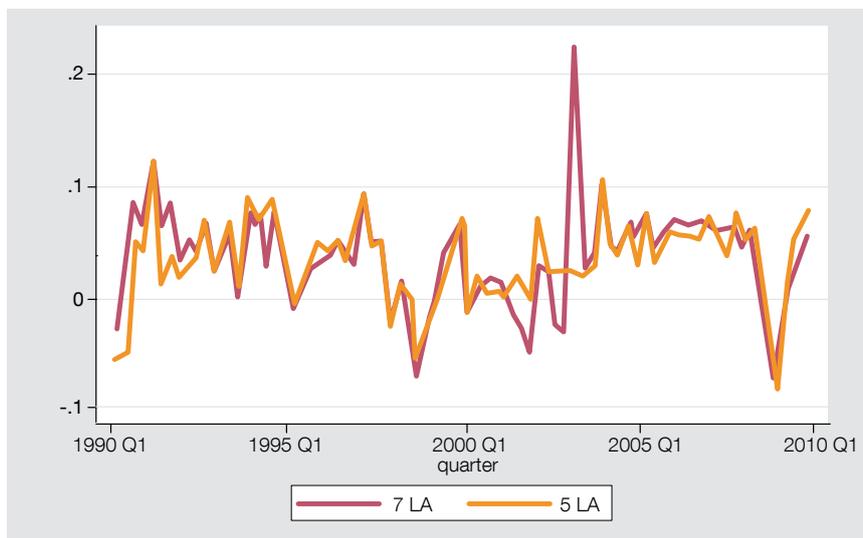
Brazil	2.95
Chile	1.24
Colombia	1.15
Mexico	3.05
Peru	1.39
Latin America IT Countries	2.0
Non-LA IT Emerging Economies	2.7
IT Industrial Countries	1.3

Note: Country average absolute inflation deviations are computed as absolute deviations of annual (year-on-year) quarterly inflation rates from official inflation targets, averaged from the start of inflation targeting in each country through the last quarter of 2009. Country-group averages are computed as simple averages of all countries in each group.

Source: Schmidt-Hebbel 2010 (b).

The major economies in LA exhibit rising trend growth since the Asian crisis, only interrupted by the recession in the wake of the 2008-09 Global Crisis (Figure 3.6). The output gap behaves accordingly (Figure 3.7). Output stability, measured by rolling standard deviations of quarterly growth rates, suggests a trend rise in stability (a decline in standard deviations) in the five IT countries since the Asian Crisis, again except for the 2008-09 global crisis episode (Figure 3.8).

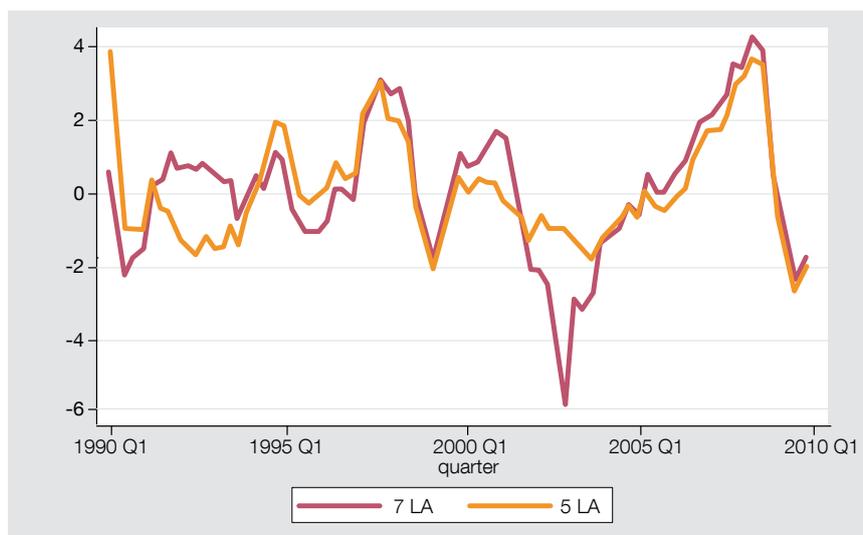
Figure 3.6: GDP Growth Rate in Latin America, 1990-2009 (%)



Note: 5 LA: average for Brazil, Chile, Colombia, Mexico, and Peru.
7 LA: average for 5 LA, Argentina, and Venezuela.

Source: Corbo and Schmidt-Hebbel (2010).

Figure 3.7: Output Gap in Latin America, 1990-2009 (%)



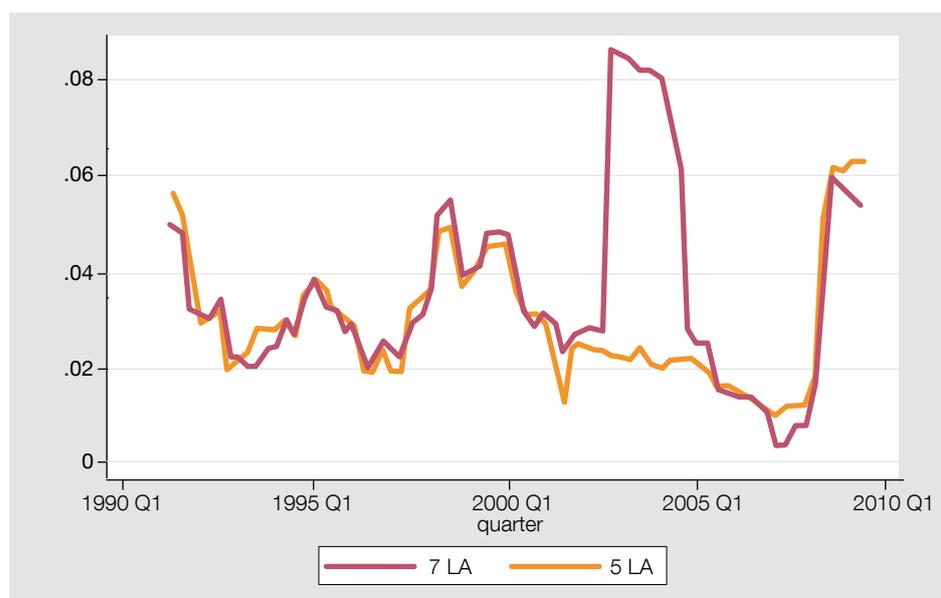
Note: 5 LA: average for Brazil, Chile, Colombia, Mexico, and Peru.
7 LA: average for 5 LA, Argentina, and Venezuela.

Source: Corbo and Schmidt-Hebbel (2010).

All the latter evidence is based on unconditional performance measures. Controlling for shocks and the influence of other factors that drive the behavior of inflation and output, how did LA and its central banks perform during the last decade? I address this question in two steps. Here I focus on conditional monetary policy efficiency in IT countries. In the following section I refer to the role of central bank policies in dampening the effects of the Global Crisis on output.

Gauging monetary policy efficiency involves measuring inflation and output volatility, consistent with a monetary policy objective function that minimizes the latter volatility measures. In the absence of cross-country measures of monetary policy efficiency for a sample of Latin American economies, here I refer to evidence for all IT countries in the world and for Chile, based on a common methodology.⁶ Figure 3.9 depicts efficiency frontiers and observed inflation and output volatility in IT countries before they adopted IT and in stationary-target IT countries. Smaller supply shocks after the mid-1990s are reflected by the inward shift in the efficiency frontier. A very significant increase in monetary policy efficiency attained by stationary-target IT countries is reflected by the closeness of the point of observed volatilities to the corresponding frontier, in comparison to pre-IT positions.

Figure 3.8: Output Stability in Latin America, 1990-2009

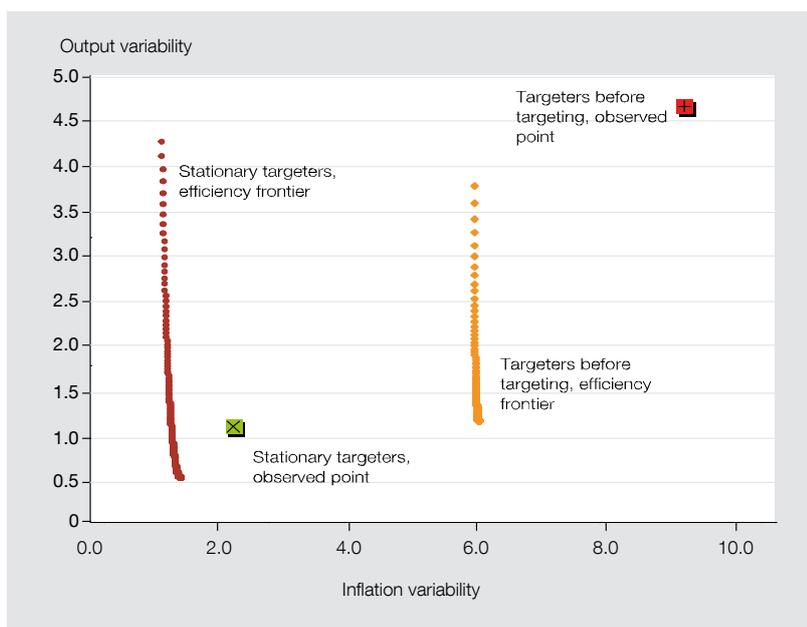


Note: output stability is measured as eight-quarter rolling standard deviation of annualized quarterly GDP growth rates through the corresponding quarter indicated in the figure. 5 LA: average for Brazil, Chile, Colombia, Mexico, and Peru. 7 LA: average for 5 LA, Argentina, and Venezuela.

Source: based on data reported in Corbo and Schmidt-Hebbel (2010).

6. Mishkin and Schmidt-Hebbel (2008), following Cecchetti et al. (2006), solve for the minimization problem of a central-bank loss function based on inflation and output volatility, subject to a highly stylized structure of an economy reflected by aggregate demand and supply equations. Extending the previous empirical work by Cecchetti et al. (2006) applied to individual countries, Mishkin and Schmidt-Hebbel estimate the system of equations on panel data for different treatment (IT) country groups and different control (non-IT) country groups, based on quarterly data for 1989-2004. Using the parameter estimates and the model solution, they construct inflation-output variability frontiers that represent measures of economic performance and monetary policy efficiency. Supply shock variability is interpreted as a change in the position of the efficiency frontier while the efficiency of monetary policy is measured by the distance from the economy's observed volatility performance to the policy efficiency frontier.

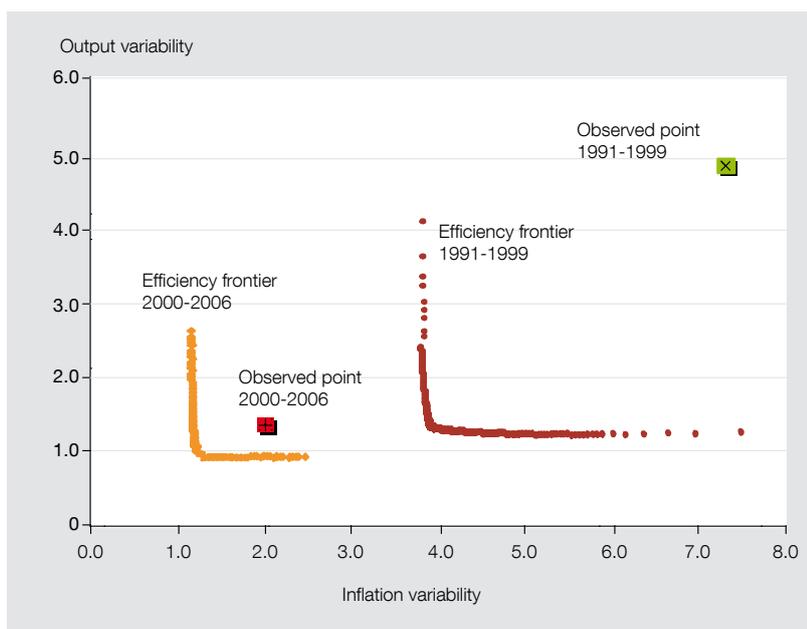
Figure 3.9: Efficiency Frontiers and Observed Inflation and Output Volatility in IT Countries before IT Adoption and in Stationary-Target IT Countries (%)



Source: Mishkin and Schmidt-Hebbel (2008).

A similar improvement in monetary policy efficiency is observed in Chile's experience (Figure 3.10). Here the comparison is between 1991-2000 – a decade of partial IT and converging inflation targets – and 2000-2006 – a period of full-fledged IT and stationary inflation target. Similar to the experience of all other IT countries, observed inflation and output volatility declined strongly and monetary policy efficiency improved significantly under stationary IT.

Figure 3.10: Efficiency Frontiers and Observed Inflation and Output Volatility in Chile during Converging IT (1991-1999) and Stationary IT (2000-2006) (%)



Source: Corbo (2007).

4 Central Banks' Response to the Global Crisis, 2008-2009

How did central banks in LA respond to the Global Financial Crisis and its recessionary consequences? What was their contribution in reducing the amplitude of the 2008-09 recession – and how does it compare to 1998-99? I address these questions in the following.

4.1 LA central bank measures in response to the crisis

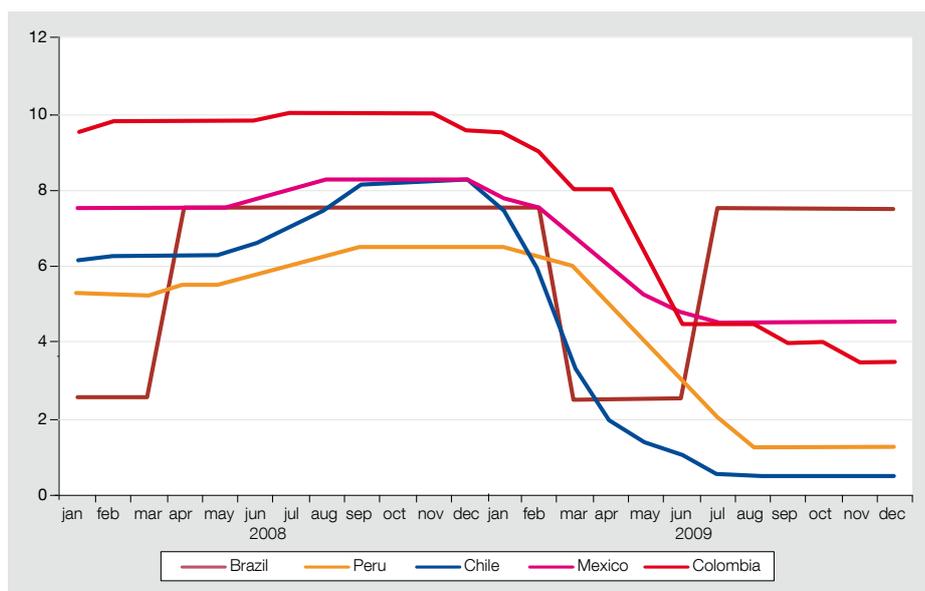
Most central banks were much better prepared to face a global crisis in 2008 than they were a decade before. As described above, they had invested heavily in improving their ER, monetary, and financial policy regimes. Therefore the region's fiscal, external, monetary, and financial conditions were much stronger when the Global Financial Crisis hit in September 2008 than at any previous experience of world shocks. Yet the intensity of the financial crisis in the world's financial centers and the magnitude of the subsequent world recession took LA's central banks (like those in other regions) by surprise, requiring a quick and effective policy response.

Several LA governments adopted strong counter-cyclical (expansionary) fiscal policy measures in response to the crisis, complementing and facilitating the response of central banks. Depending on the country and its ER regime, central banks used a combination of foreign-exchange provision (i.e., ER intervention) and ER depreciation to cushion the exchange market pressures caused by the global crisis. Among the foreign-exchange operations carried out by many central banks (including all five inflation targeters) between September 2008 and mid-2009 were some of the following: currency swaps, foreign exchange swap auctions, direct foreign exchange spot purchases, and foreign currency term liquidity provisions. In addition, some countries agreed foreign exchange swap with foreign central banks (Brazil, Mexico) and signed up for an IMF Contingent Credit Line and/or an IMF Special Drawing Right facility (Colombia, Mexico).⁷

Most LA central banks engaged in conventional monetary policy easing (Figure 4.1). Some central banks lowered their interest rates quickly and aggressively in late 2008 and early 2009, as many industrial-country central banks did at that time. In LA, however, only Chile lowered rates close to the zero lower bound. All LA central banks (other than Chile's) lowered policy rates to minimum levels that were well above zero, which is consistent with the fact that their complementary unconventional policies of quantitative liquidity and credit easing were much less extensive than those pursued in many industrial countries. In addition, LA's local financial markets did not dry up and domestic financial institutions were not at the brink of bankruptcy, as was the case in several industrial countries.

7. Calani et al. (2010) provide a valuable description of different forms of ER interventions and conventional/unconventional monetary policy measures adopted by 9 industrial and emerging countries with IT regimes in response to the global crisis in 2008-09. They also document quantitatively the significant deviations of monetary policy decisions from the prescriptions based on standard monetary policy functions during the crisis, as well as the impact of ER interventions and unconventional quantitative measures on domestic interest rates and exchange rates, reporting mixed results.

Figure 4.1: Monetary Policy Rate in Inflation-Targeting Countries, 2008-2009



Source: National Central Bank websites.

The range of unconventional policies aimed at providing liquidity and reducing risk premiums, adopted by LA's central banks in IT countries (Brazil, Chile, Colombia, Mexico, and Peru) and elsewhere, spans the following instruments:

- (i) Reduction of bank reserve requirements,
- (ii) Pre-commitment to hold on to low policy rates for a period well beyond the next monetary policy meeting,
- (iii) Implementation of term liquidity facilities (typically for 3-6 month maturity) at the current low monetary policy rate,
- (iv) Expanded purchase of central bank liabilities,
- (v) Extension of domestic interest swap lines,
- (vi) Purchase of private-sector liabilities, relaxing collateral requirements, and
- (vii) Purchase of treasury bonds.

Some evidence suggests that the unconventional monetary programs were successful in reducing domestic interest rates, flattening yield curves, reducing risk premiums in domestic asset markets, lowering bank lending-deposit rate spreads, and providing liquidity [Central Bank of Chile (2009), Calani et al. (2010), Céspedes et al. (2010)]. Therefore one may conclude tentatively that the latter unconventional policies by LA central banks were complementary to interest-rate cuts in supporting private credit provision by commercial banks and hence in dampening the impact of the global crisis on domestic aggregate demand and output.

Finally, LA central bank responses to the crisis – like those by industrial-country central banks – largely satisfied Noyer’s (2009) three desirable characteristics of crisis interventions: they were fast and decisive, flexible and highly innovative, and cooperative and convergent.

LA’s commercial banks entered largely the crisis with strong financial positions. There were no U.S. toxic assets and few derivatives on their balance sheets. Yet at different points in time between September and December 2009, foreign credit lines to banks and non-financial institutions in LA were in part curtailed, in response to higher sovereign risk or lack of available liquidity in foreign creditor banks. The central banks’ ER interventions and foreign-currency credit lines, and their provision of domestic liquidity and credit lines to commercial banks, substituted for the reduction in foreign credit.

In sum, bank credit to the private sector was not curtailed in 2008-09, which contributed to lessen the recessionary impact of the crisis. For the first time in many decades, LA’s banking systems faced successfully a major external shock without suffering turbulence or a crisis, supported by effective risk control and high bank capitalization, as shown above.

4.2 Contribution of central bank policies to lessen the 2008-2009 recession

How much did the investments made by the region’s central banks in improving their policy framework during the last decade and the measures they took in response to the unfolding world crisis cushion their economies from the recession? Controlling for the direct effects of the world recession, how much did central bank policies contribute to lessen the 2008-09 recession – and how did their performance compare to the policy response during the 1998-99 recession in the aftermath of the Asian Crisis?

Here I respond to the latter questions, referring to recent empirical results from joint research conducted with Vittorio Corbo [Corbo and Schmidt-Hebbel (2010)]. In the latter work, we specify and estimate an empirical growth model for the seven largest LA economies that encompasses a large set of structural, institutional, policy, and cyclical determinants of short and long-term growth, anchored in theory and international evidence.⁸ Here I summarize briefly how we put the latter regression results at work, by identifying the role of international and domestic growth determinants – including central bank policies – of the amplitude of LA’s recessions in the wake of the Asian Crisis and the Global Financial Crisis.

8. We use a database comprised by an unbalanced panel of quarterly 1990.1 – 1999.4 data for the LA-7 country sample, comprised by the five IT countries – Brazil, Chile, Colombia, Mexico, and Peru – plus Argentina and Venezuela. Estimations are performed using the multi-variate fixed-effects unbalanced panel estimator.

Table 4.1: Amplitude of GDP Growth Decline in Latin America, 1998-1999 and 2008-2009

	Asian Crisis	Global Financial Crisis
	1998 Q3–1999 Q2	2008 Q4–2009 Q2
Argentina	-5.20%	-1.55%
Brazil	-1.03%	-3.99%
Chile	-3.88%	-4.40%
Colombia	-6.82%	-0.87%
Mexico	3.37%	-11.09%
Peru	1.15%	-3.64%
Venezuela	-8.51%	-3.59%
Simple Average	-2.99%	-4.16%
Weighted Average	-1.15%	-5.24%

Note: Cumulative GDP growth rates within the reference period.

Source: Corbo and Schmidt-Hebbel (2010).

Table 4.1 reports the annualized recession amplitudes for the seven individual countries and the region at large during both recessions. The peak-to-trough cumulative GDP change ranges from a GDP loss of 8.5% in Venezuela to a GDP gain of 3.4% in Mexico during the four-quarter 1998-99 recession. In contrast to the 1998-99 case, all seven countries are in negative terrain during the three-quarter 2008-09 recession, with cumulative GDP losses that range from 0.9% in Colombia to 11.1% in Mexico. Simple (weighted) country averages of recession amplitudes for the region stand at -3.0% (-1.2%) for the first recession and -4.2% (-5.2%) for the second recession. By any of the latter measures, it is clear that the second recession was much deeper than the first one.

Table 4.2 reports a decomposition of the region's observed simple-average recession amplitude for 1998-99 and 2008-09, making use of the regression coefficient estimates and the changes in independent variables (and in coefficient estimates, when applicable).⁹ A summary of the latter decomposition, according to key sets of explanatory variables, is depicted in Figure 4.2.

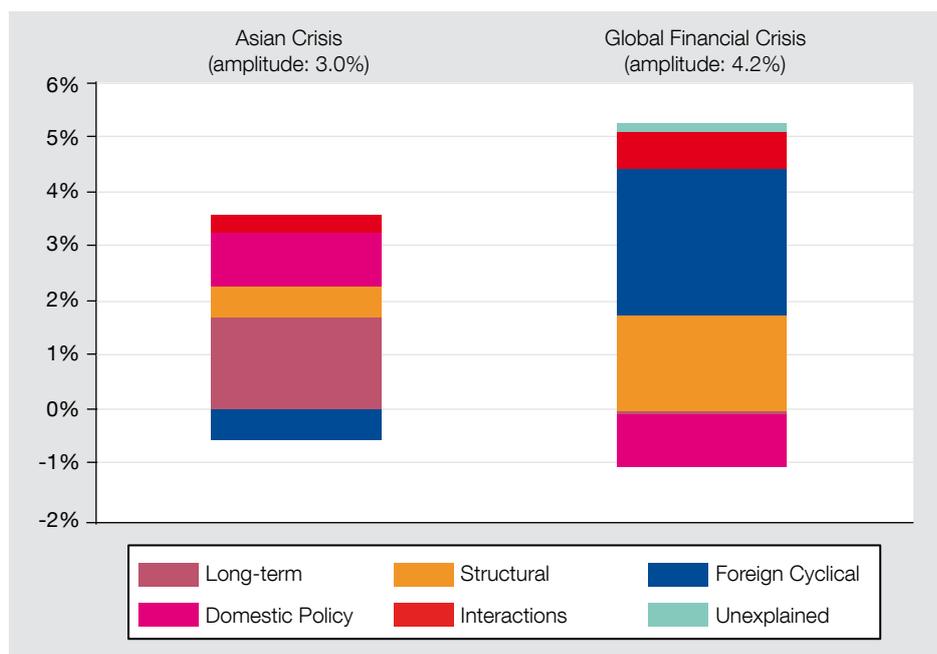
⁹ Table 4.2 reports the recession amplitude decomposition for the Asian crisis (column 1) and for the global financial crisis (column 2). The latter column is divided into three parts: the first is based on changes in explanatory variables only, the second is based on changes in estimated parameters only, and the third is the total contribution, which is the sum of the two previous parts.

Table 4.2: Decomposition of Latin America's Recessions, 1998-1999 and 2008-2009

	Asian Crisis		Global Financial Crisis	
	1998 Q3– 1999 Q2		2008 Q4– 2009 Q2	
Amplitude of GDP Growth Decline	-2.99%		-4.16%	
		Structural Changes		
		NO	Changes	YES
Sources:				
Long-Term Variables	-1.68%	0.77%		0.05%
Private Credit	0.24%	0.44%		0.44%
Inflation	0.65%	0.97%	-0.73%	0.24%
Secondary School Enrollment	-0.14%	0.15%		0.15%
Fiscal Balance	-1.17%	-0.73%		-0.73%
Political Certainty	-1.26%	-0.06%	0.01%	-0.05%
Structural Variables	-0.57%	0.59%		-1.70%
Financial Openness	0.73%	-0.60%	0.14%	-0.46%
Trade Openness	-0.53%	-1.32%	-0.79%	-2.11%
Net External Assets	-0.08%	0.08%		0.08%
International Reserves	-0.68%	2.43%	-1.64%	0.79%
Exchanges Rate Regime	-0.01%	0.00%	0.00%	0.00%
Foreign Cyclical Variables	0.54%	-2.60%		-2.74%
Terms of Trade Growth	0.02%	-0.32%		-0.32%
Growth of Trading Partners	0.26%	-1.36%		-1.36%
Growth of World Exports	0.53%	-0.05%		-0.05%
Capital Inflows to Latin America	-0.05%	-0.68%		-0.68%
Sovereign Spreads	-0.22%	-0.19%	-0.14%	-0.33%
Domestic Policy Variables	-0.99%	-0.14%		0.99%
Government Consumption	0.69%	1.12%		1.12%
Real Interest Rate	-1.68%	-1.26%	1.13%	-0.13%
Interactions	-0.02%	-0.67%		-0.67%
Government of Trading Partners * Trade Openness	0.00%	-0.19%		-0.19%
Government of Trading Partners * Financial Openness	0.10%	-0.35%		-0.35%
Capital Inflows to Latin America * Financial Openness	-0.09%	-0.10%		-0.10%
Sovereign Spreads * Net External Assets	-0.02%	-0.03%		-0.03%
Structural Changes post-2000		-2.02%		
Explained variation	-2.72%	-4.07%		-4.07%
Unexplained variation	-0.26%	-0.09%		0.09%
Total Variation	-2.99%	-4.16%		-4.16%

Source: Corbo and Schmidt-Hebbel (2010).

Figure 4.2: Contribution of Groups of Growth Determinants to Latin America's Recessions, 1998-1999 and 2008-2009



Source: Corbo and Schmidt-Hebbel (2010).

The amplitude of the first recession is -3.0% (reported in the bottom line of Table 4.2), of which some 90% (i.e., an annualized output decline of 2.7%) is explained by the contribution of growth factors. Of the much deeper second recession, with an amplitude of -4.2%, some 95% (i.e., an annualized output decline of 4.1%) is explained by growth determinants. What are the factors driving the growth decline – and which roles did policies play in the downturns?

A first striking difference emerges between both recessions. On average (across countries and across the five foreign cyclical variables), international conditions improved during the first recession, contributing by 0.5% to higher cumulative growth. The opposite is observed during the recent recession, when international conditions deteriorated on average massively for LA, contributing by -2.7% to (or more than half of) the recession's amplitude. While the 1998-99 recession was largely home-made, the 2008-09 recession was largely imported to the region.

Second, trade and financial openness spur long-term growth – but larger integration into the world economy deepens recessions when world trade declines and capital inflows turn into outflows. This was an important recession factor in 2008-09, in contrast to 1998-99 when LA was less open and not affected by a deteriorating world economy.

Third, political credibility deterioration contributed significantly to the 1998-99 recession, while it did not change in 2008-09, reflecting higher and more resilient levels of confidence in the region's politics and economics.

Fourth, fiscal policy contraction deepened the 1998-99 recession, while fiscal expansion helped to offset part of the 2008-09 recession.

Now I turn to the role of central bank policies. In both recessions inflation fell and this decline (as a proxy of macroeconomic stability) had a positive (dampening) effect on output in both downturns. The regime change from fixed or intermediate to flexible ER regimes during the last decade had two positive effects on growth. First, a flexible ER regime has a direct positive effect on long-term growth (not reflected in the short-term recession decomposition in Table 4.2). Second, ER flexibility does not require active ER defense through monetary policy. While policy interest rates were raised by several central banks in 1998 to defend their fixed ERs, policy rates were actively (and, in some countries, aggressively) reduced in 2008-09. As a result of strongly declining inflation rates – in some countries, from high positive to negative levels – real policy rates rose during the 2008-09 recession, but less than in 1998-99. All in all, the direct effect of real policy rates was very negative for growth in 1998-99, while it was close to nil in 2008-09. As a result of the region's stable financial system that provided continued private-sector access to credit, and also due to lower nominal interest rates, bank credit to the private sector expanded in 2008-09 at twice the speed of 1998-99, lessening the recession. Finally, central banks' low and declining levels of international reserves – as part of non-flexible ER regimes – deepened the 1998-99 recession, while high and rising reserve holdings lessened the 2008-09 recession.

I conclude that LA's central bank policies have changed significantly during the last decade, as a result of a new policy framework based on monetary policy focused on low and stable inflation (often supported by full-fledged IT), a flexible ER regime combined with significant international reserve buffers, and adoption (in conjunction with governments) of prudent financial regulation in support of a stable domestic banking system and strong international financial integration. This policy framework has served LA's central banks well in responding to the crisis and dampening its domestic recessionary impact.

5 The Road Ahead: Post-crisis Policy Challenges faced by Central Banks in Latin America

Having weathered well the global financial crisis and recession, now LA's central banks face a large array of policy challenges. Some are faced by central banks in industrial and emerging economies alike, derived from the crisis itself and the issues it poses for improving the role of central banks in attaining more effectively both monetary and financial stability. Other challenges are idiosyncratic to emerging economies in LA (and elsewhere) that are facing a strong recovery, high output and demand growth, high commodity prices, large capital inflows, booming domestic asset and real-estate markets, and real ER appreciation. Moreover, central bank policy challenges are conditional to other public policies, particularly fiscal policy [Uribe (2009)]. Hence I focus on the three latter issues next.

5.1 Policy Challenges faced by Central Banks – both in Latin America and elsewhere

The global crisis and recession has revealed weaknesses of central bank policy frameworks that were hidden by the *Great Moderation* and the boom years that preceded the crisis. In addition, a host of new issues, related to financial stability and its relation to monetary stability, have been forwarded by the global financial crisis. A selective discussion of these issues follows, with a focus on the challenges they imply for central banks in LA.

5.1.1 WORLD-WIDE REFORM OF FINANCIAL SUPERVISION AND REGULATION

Central banks world-wide are engaged with governments and international organizations – including the G-20, the Financial Stability Board, the IMF, and the BIS – in reaching a better understanding of the multi-dimensional causes of the crisis and, subsequently, to agree on a common framework for reform of financial supervision and regulation. The first task is intellectually challenging and the second is politically difficult. Detailed explanations of the crisis and reform proposals are put forward by central bank governors, including Carstens (2010), De Gregorio (2009, 2010a, 2010b), Fernández Ordóñez (2009a, 2009b), Noyer (2009, 2010), Orphanides (2009, 2010), Trichet (2010a, 2010b, 2010c), Uribe (2009a, 2010), and Weber (2010a, 2010b, 2010c).¹⁰

Both tasks require to be addressed with a strong sense of urgency, in order to preclude a repeat of this crisis, which could be significantly worse than the previous crisis due to the massive moral hazard introduced by the (well-justified) financial-sector rescue programs. While there is some consensus on the main market and policy failures that led to the financial crisis and the broad features of required reforms, there is still significant disagreement on detailed design and implementation features of the reforms.

In this international context, which are the key tasks for LA's central banks? First, active participation of Argentina, Brazil, and Mexico in G-20 and FSB meetings of discussion, negotiation, and approval of financial reform proposals. Second, engaged and independent evaluation of analytical underpinnings, empirical effects, and policy implications of reform

¹⁰ My favorite list of the dozen key market and policy failures that led to the financial crisis is the following dozen: disaster myopia, moral hazard, agency problem, flawed risk models, reliance on banks' proprietary models, reliance on risk-rating agencies, complexity, blindness to systemic risks, inadequate capital and liquidity requirements, no coherent rescue procedures, supervision failures, and regulatory arbitrage [Corbo et al. (2011)].

proposals by all central banks and their research departments. Finally, careful but committed implementation of financial reforms that are agreed internationally.

5.1.2 MACRO-PRUDENTIAL REGULATION

A key area of financial reform for central banks is macro-prudential regulation because it will both be the single most important instrument for aiming at systemic financial stability and fall squarely on the lap of central banks. While still under discussion, but inspired by Spain's successful experience, macro-prudential regulation will complement standard micro-prudential regulation and oversight by putting in place a combination of dynamic (cyclical) liquidity and capital provisions that offset the pro-cyclical interconnections between asset valuation, credit flows, and leverage [Fernández Ordóñez (2009a)].

The challenge for LA's central banks will be similar to that discussed above: participating actively in discussing the final shape and implementation of macro-prudential regulation, understanding well its empirical and policy implications, and adopting it effectively and quickly, following Colombia's lead in the region.

5.1.3 FLEXIBLE IT¹¹

Flexible IT, conducted transparently by an independent central bank and combined with a floating ER, defined the international frontier of best-practice monetary and ER regimes before the crisis. Is this still the case? Two years ago, a Nobel prize recipient predicted the demise of IT due to its presumed failures that supposedly led to the financial crisis [Stiglitz (2008)]. Yet this monetary regime survived the crisis unscathed – relative to other competing monetary regimes – and therefore IT central banks world-wide do not seem inclined to ditch this regime.

However there are several challenges to standard IT as it is practiced today. Here I refer to two sets of challenges that lie ahead for IT central banks. The first relates to demands for enlarging monetary policy transparency. The second set is comprised by systemic challenges to the conduct of policy and the design of IT that are derived from questions posed by the monetary policy experience of the 2002-2009 boom-bust cycle [for more discussion see Hammond (2009) and Walsh (2009a, 2009b)].

The evidence discussed in this and other papers on the comparative achievements of monetary policy under IT suggests that explicit IT delivers at least similar results of stabilization than those observed in other successful monetary regimes (including implicit IT and other monetary regimes different from explicit IT, like those pursued by the U.S. Federal Reserve, the European Central Bank, and the Bank of Japan). In three particular dimensions IT may dominate alternative regimes. First, IT is associated to higher levels of transparency and accountability than those observed in other regimes, as shown by Dincer and Eichengreen (2007) and Geraats (2008). IT may also provide more predictability because of less discretion in monetary policy decisions [Walsh (2009a, 2009b)]. Third, IT delivers better anchoring of inflation expectations [Gürkaynak et al. (2007) and De Carvalho and Minella (2009)]. However, overall macroeconomic stability (measured by inflation and volatility of inflation and output) and monetary policy efficiency are not found to be higher in IT countries than in major industrial economies that have in place other monetary regimes,

¹¹. Here I follow closely previous discussions on challenges for inflation targeting [Walsh (2009a, 2009b), Schmidt-Hebbel (2010b)].

like the U.S., the euro zone, and Japan [Mishkin and Schmidt-Hebbel (2007), among others, as discussed by Walsh (2009a)].

Most IT central banks still face important transparency and communication challenges. First, following the advice of academics and the encouraging experience of several IT central banks that already have done so, all ITers should aim at publishing their interest-rate forecasts and fan charts, complementing their current publication of inflation and output growth forecasts and fan charts. Second, to extend transparency of their projections, central banks should include their backcasts and forecasts of key unobservable variables [Schmidt-Hebbel and Walsh (2009)], including potential or efficient-level output (and the output gap), the natural unemployment rate (and the deviation of the actual from the natural rate of unemployment), the neutral rate of interest (and the interest-rate gap), and the equilibrium exchange rate (and the deviation of the actual from the equilibrium exchange rate). Finally, while central banks have made improvements in procedural transparency, they should commit to publish timely and full transcripts or minutes of their monetary policy meetings.

Frontier monetary policy – under both IT and other inflation regimes – is severely challenged by our current understanding of the current financial crisis cum recession and the boom-and-bubble period that preceded it. This raises two sets of issues for monetary policy and monetary regime choice: the role of asset prices and financial frictions for monetary policy in general (not just under IT) and the design of IT.

The pre-crisis consensus view on the role of asset prices and monetary policy was that the latter should react to asset-price shocks only to the extent that they affect inflation forecasts or if the real interest rate were affected by financial shocks [Bernanke and Gertler (2001)]. Yet financial frictions (like real frictions) affect monetary policy transmission and interact with nominal rigidities, hence calling for monetary policy to mitigate the effects of the latter interaction.¹² The crisis has highlighted the latter role for monetary policy [as shown in recent theoretical work by Cúrdia and Woodford (2008), De Fiore and Tristani (2009), and Demirel (2009)] although, as pointed out by Walsh (2009b), the appropriate monetary policy response will depend on the type of financial friction and shock.

A separate, much longer discussion has been whether central banks should lean against the wind of asset-price bubbles. Cecchetti et al. (2000), Cecchetti et al. (2002), and Borio and White (2003) have argued that monetary policy should attempt burst bubbles *ex ante*. Against the latter, the wide-shared consensus view was that monetary policy was too ineffective to deal with bubbles, that bubbles were difficult to identify *ex ante*, and that the more effective alternative would be to address the effects of a busting bubble by easing policy after the fact [Bernanke and Gertler (2001), Bernanke (2002), Gertler (2003)]. The latter consensus view has been seriously shattered by the massive real costs and deflationary consequences of the housing and equity price bursts observed in many industrial economies, with world-wide consequences. While this bubble-and-bust experience has also certainly other causes in many market and regulatory imperfections that require

12. Walsh (2009a) makes the important point that monetary policy acts as second-best policy. If an effective time-varying fiscal-policy instrument (based on taxes and subsidies) were available to counter-act the effects of mark-up (real) shocks, monetary policy would not be necessary to mitigate the inflation and output effects of interactions between real frictions and nominal rigidities. In the same vein, if an effective time-varying financial regulation (for example, counter-cyclical capital and liquidity requirements) were available to counter-act the effects of financial shocks, like changes in credit spreads, monetary would not be necessary to mitigate the consequences of interactions between financial frictions and nominal rigidities.

separate regulatory reform, it is likely to lead to changes in the conduct of monetary policy – both with and without IT – aiming at deflating incipient asset-price bubbles.

Another issue brought to the forefront by monetary policy actions during the current crisis is to come to a better theoretical and practical understanding of how conventional monetary policy – both under IT and other monetary regimes – is complemented by the type of unconventional monetary (and credit) policies that were discussed above.

Finally, the crisis has brought to the open the problems faced by monetary policy under conditions of severe deflationary demand shock that leads to policy rate cuts toward zero, i.e., when the zero-lower bound (ZLB) is binding. Three design corrections to the actual implementation of IT in most countries could reduce the likelihood of attaining the ZLB: raising the numerical inflation target (at the cost of having higher average inflation), adopting a core-inflation target, which exhibits less volatility around the central target value than headline inflation (at the cost of reducing the usefulness and credibility of a headline-inflation target), and extending the standard policy horizons under IT (typically between 2 and 3 years) to 5 years or more, as suggested by Mishkin (2008). The three latter alternatives have been discussed in the literature on the start and optimal design of IT. They were largely dismissed until now but the binding ZLB and the protracted recession make their discussion relevant again. I find the latter three options unconvincing, while my sympathy lies with the following option.

The most radical challenge to IT comes from the proposal of adopting price level targeting (PLT). Long before the current crisis, Svensson (1999) and Vestin (2006) were among the first to evaluate seriously the relative merits and possible adoption of PLT. PLT's main theoretical advantage over IT is that the expectation that prices will return to their target level influences current inflation when price setting is forward-looking. This benefit may be strong when the ZLB holds and the economy is in a deflationary liquidity trap. Deflationary bygones under IT are not bygones under PLT, requiring future inflation that is on average higher than the inflation target level (or the price level target trend). As this is anticipated by forward-looking agents, the likelihood of getting into a deflationary situation is lower under PLT and, when it materializes, the likelihood of getting out more quickly is larger under PLT.¹³ Although much more analysis and simulation studies are required [see Walsh (2009a) and Weber (2010a)], PLT is likely to emerge as a viable and possibly superior alternative to – or improvement of – IT in the future.

5.2 Idiosyncratic policy challenges faced by Latin America's central banks

As opposed to industrial countries, but similar to other emerging-economy regions, LA is facing a strong recovery, high output and demand growth, high commodity prices, large capital inflows, booming domestic asset and real-estate markets, and real ER appreciation. This poses severe strains on policy makers in general and central banks in particular. I discuss three policy challenges faced by the region's central banks today.

5.2.1 LA'S LARGE SENSITIVITY TO FOREIGN SHOCKS

LA is a very open region and therefore sensitive to foreign shocks. Cross-country research shows that sensitivity to shocks is exacerbated in LA by weaker institutions, less domestic

¹³ Walsh (2009b) reports counter-factual simulation results of the stabilizing effects of PLT on inflation expectations, if the U.S. had had PLT in place at the start of the crisis instead of its actual monetary regime.

financial development, and lower financial integration than in industrial countries [Calderón et al. (2008), Calderón and Schmidt-Hebbel (2008)].

The policy implication of the latter for LA is to attach a high priority to strengthen counter-cyclical of all its macro policies – fiscal, monetary, and macro-prudential policies – to offset more effectively the destabilizing effects of external shocks.

5.2.2 COMMODITY BOOMS

One major source of foreign shocks are commodity price booms and busts. A long-lasting commodity boom started in 2006, briefly interrupted by the global crisis but going ahead with invigorated intensity, driven by high growth in emerging economies and Asian growth in particular. Many analysts predict that commodity prices could remain at very high levels for several years. This poses significant dilemmas for policy makers of commodity-exporting countries. Certainly the first-best policy to deal with a commodity boom is to save the estimated temporary component of commodity prices. This can be supported by counter-cyclical monetary, fiscal, and macro-prudential policies, with governments saving their part of temporary commodity revenue in sovereign wealth funds.

5.2.3 REAL ER APPRECIATION AND ER INTERVENTIONS

A large real ER appreciation has been observed in LA since the start of the post-crisis recovery in mid-2009, fuelled by high growth, booming commodity prices, and large capital inflows.¹⁴ Significant ER interventions have been conducted by many LA central banks for the reasons discussed above, before, during, and after the crisis. Yet after the return to normal times, the question arises about the pros and cons of systematic and of sporadic ER interventions. As discussed above, interventions could be considered second-best policy options, potentially useful in the absence of first-best responses to the underlying shocks (higher commodity prices, larger capital inflows), such as effective counter-cyclical policies and effective financial regulation and supervision. Finally, if exceptional ER interventions are implemented, Chile's experience of pre-announced intervention periods and amounts could be an example of effective interventions in response to sporadic ER bubbles.

5.2.4 LARGE (GROSS) CAPITAL INFLOWS AND CAPITAL CONTROLS

LA is facing again a period of large gross capital inflows, caused by search for higher portfolio returns, high domestic growth and improved investment opportunities, and lower country risk. As in previous episodes of large capital inflows, they may contribute to excessive debt accumulation, domestic overheating, and real ER overvaluation. A related risk is that investor sentiment about investment opportunities and risks may change abruptly, causing a sudden reversal in capital inflows, triggering a possible financial crisis and recession. To preclude such risks, two Latin America countries (Brazil and Colombia) have already imposed controls on capital inflows and others may follow.

As discussed above, the evidence on effectiveness and costs of capital controls is generally not supportive of their use. Capital controls could only be justified as an exceptional second-best policy when first-best solutions are not available and when the stabilizing effects of capital controls outweigh the costs derived from the financial distortions caused by controls. When first best policies are feasible to implement, they should be tried first:

¹⁴. However, the U.S. dollar depreciation against most other currencies in the world implies that bilateral real ERs (against the U.S. dollar) have appreciated much more than multilateral real (or real effective) ERs in the region.

strong counter-cyclical macroeconomic and macro-prudential policies, and enhanced regulation of domestic financial systems to stem accumulation of currency, maturity, and sector credit risks that may be exacerbated by large capital inflows. Not surprisingly, as countries develop financially and economically, controls on capital inflows are abolished completely and permanently.

5.3 Fiscal Policy Challenges

Central bank policies are ineffective in the absence of prudent and sustainable fiscal policy [Uribe (2009a, 2009b)]. Moreover, central banks' conventional counter-cyclical monetary policy, future counter-cyclical macro-prudential policy, and financial stability policy are all strengthened by governments that adopt effective sustainable and counter-cyclical fiscal policies. For this reason I end this section referring to the need of deep reforms in the region's fiscal frameworks.

Latin America has made significant progress in fiscal consolidation over the last two decades, as documented in section 2. Indeed, current measures of fiscal deficits and debt levels put most LA economies at a far distance from the dismal fiscal position observed in many industrial countries today – a complete reversal of fortunes compared to two decades ago.

However, Latin America's fiscal stance and performance is still fragile and very sensitive to major shocks, exhibiting pro-cyclicality, lacking fiscal rules (except Chile), and lacking a sound institutional set-up. The way forward is conceptually straightforward but politically fraught with difficulties: turning fiscal policy pro-cyclicality into counter-cyclicality, adopting fiscal rules based on cyclically-adjusted fiscal balance targets (like in Chile since 2001), and putting in place fiscal councils, i.e., independent institutions that monitor budgetary planning and execution according to the fiscal rule and conduct technical assessment of fiscal, financial, and macroeconomic consequences of fiscal policy changes (like the councils proposed in France and the United Kingdom).

6 Concluding Remarks

In this lecture I have reviewed the profound changes and significant achievements of central banks in LA during the last two decades, discussing also their main challenges faced in the post-crisis world.

LA's central banks were strengthened in the 1990s by independence laws, adoption of new policy regimes (foremost inflation targeting), and more transparent policy decisions bound by ex-ante rules and ex-post accountability. Central bank modernization – supported by significant fiscal adjustment and financial-sector strengthening – led most Latin American countries to converge to one-digit inflation rates and contributed to higher and more stable growth than in the past.

Yet the region's new policy framework was put to severe testing by the global financial crisis. Quick and innovative policy responses by the region's central banks helped domestic financial systems and the real economy to resist well the massive financial and real consequences of the banking crisis and recession in industrial countries. I have reported empirical evidence that shows that the central banks' new policy framework and policy response during the crisis dampened significantly the amplitude of the recession.

Having weathered well the global financial crisis and recession, now Latin America's central banks face a large array of policy challenges, which are reviewed in this lecture. Some are common to central banks in industrial and emerging economies, derived from the crisis itself and the issues it poses for improving the role of central banks in attaining more effectively both monetary and financial stability. The latter imply that the region's central banks should take active part in the global discussion and adoption of reforms of financial regulation and supervision and adoption of a new macro-prudential policy framework. Furthermore, IT adoption should be extended through the region and its implementation should be improved.

Other challenges are idiosyncratic to emerging economies in LA (and elsewhere) that are facing renewed growth, high commodity prices, large capital inflows, and significant real exchange-rate appreciation. The latter challenges are addressed best by strengthening counter-cyclical macroeconomic and macro-prudential policies, and enhancing regulation of domestic financial systems to stem accumulation of currency, maturity, and credit risks that may be exacerbated by large capital inflows. The region's progress in attaining the latter policy objectives will determine the pace at which LA's central banks graduate from second-best policy options like exchange-rate interventions and capital controls.

7 REFERENCES

- AGUIRRE, A., and C. CALDERÓN (2005). *Real Exchange Rate Misalignments and Economic Performance*, Central Bank of Chile Working Paper No. 315.
- BATINI, N., and D. LAXTON (2007). "Under What Conditions Can Inflation Targeting be Adopted? The Experience of Emerging Markets", in F. S. Mishkin and K. Schmidt-Hebbel (eds.), *Monetary Policy under Inflation Targeting*, Santiago: Central Bank of Chile.
- BERNANKE, B. S. (2002). "Asset-Price 'Bubbles' and Monetary Policy", *Remarks before the New York Chapter of the National Association for Business Economists*, 15 October, New York.
- BERNANKE, B. S., and M. GERTLER (2001). "How Should Central Bankers Respond to Asset Prices?", *American Economic Review Papers and Proceedings*, 91 (2), pp. 253-257.
- BENIGNO, G., H. CHEN, C. OTROK, A. REBUCCI and E. YOUNG (2010). "Are Macro-prudential Policies Prudent?", *Vox*, 16 August.
- BORIO, C., and W. R. WHITE (2003). "Whither Monetary and Financial Stability? The Implications of Evolving Policy Regimes", in Federal Reserve Bank of Kansas City, *Monetary Policy and Uncertainty: Adapting to a Changing Economy. A Symposium*, Kansas City.
- BRUNO, M., and W. EASTERLY (1996). "Inflation's Children: Tales of Crises that Beget Reforms", *The American Economic Review*, 86 (2).
- CALANI, M., K. COWAN and P. GARCÍA (2010). *Inflation Targeting in Financially Stable Economies: Has it been Flexible Enough?*, Central Bank of Chile Working Paper No. 587.
- CALDERÓN, C., N. LOAYZA and K. SCHMIDT-HEBBEL (2006). "External Conditions and Growth Performance", in R. J. Caballero, C. Calderón and L. F. Céspedes (eds.), *External Vulnerability and Preventive Policies*, Santiago: Central Bank of Chile.
- (2008). *Does Openness Imply Greater Vulnerability?*, Central Bank of Chile Working Paper No. 485.
- CALDERÓN, C., and K. SCHMIDT-HEBBEL (2008). *Openness and Growth Volatility*, Central Bank of Chile Working Paper No. 483.
- CARSTENS, A. (2010). *Latinoamérica ante un Escenario Post-Crisis, Expectativas Macroeconómicas*, manuscript, Central Bank of Mexico.
- CARSTENS, A., and L. I. JÁCOME (2005). *Latin American Central Bank Reform: Progress and Challenges*, IMF Working Paper WP/05/114.
- CECCHETTI, S. G., A. FLORES-LAGUNES and S. KRAUSE (2006). "Has Monetary Policy Become More Efficient? A Cross Country Analysis", *The Economic Journal*, 116, pp. 408-433.
- CECCHETTI, S. G., H. GENBERG, J. LIPSKY and S. WADHWANI (2000). "Asset Prices and Central Bank Policy", *Geneva Reports on the World Economy*, No. 2.
- CECCHETTI, S. G., H. GENBERG and S. WADHWANI (2002). *Asset Prices in a Flexible Inflation Targeting Framework*, NBER Working Paper No. 8970.
- CENTRAL BANK OF CHILE (2009). *Monetary Policy Report*, December, Santiago.
- CÉSPEDES, L. F., R. CHANG and J. GARCÍA-CICCO (2010). *Heterodox Central Banking*, Central Bank of Chile Working Paper No. 586.
- CORBO, V., J. DESORMEAUX and K. SCHMIDT-HEBBEL (2011). *Global Financial Crisis: Causes and Lessons*, manuscript, CEP and Catholic University of Chile.
- CORBO, V., and K. SCHMIDT-HEBBEL (2010). *From the Asian Crisis to the Global Financial Crisis: Is this Time different for Latin America*, manuscript, CEP and Catholic University of Chile, March, Santiago.
- CUKIERMAN, A. (1992). *Central Bank Strategy, Credibility and Independence – Theory and Evidence*, Cambridge: The MIT Press.
- CUKIERMAN, A., G. P. MILLER and B. NEYAPTI (2002). "Central Bank Reform, Liberalization and Inflation in Transition Economies an International Perspective", *Journal of Monetary Economics*, 49.
- CÚRDIA, V., and M. WOODFORD (2008). *Credit Frictions and Optimal Monetary Policy*, Columbia University Discussion Papers 0809-02.
- DE FIORE, F., and O. TRISTANI (2009). *Optimal Monetary Policy in a Model of the Credit Channel*, manuscript, March, European Central Bank.
- DE GREGORIO, J. (2009). *Monetary Policy and Financial Stability: An Emerging Market Perspective*, Speech at Brookings Institution, Washington, DC.
<http://www.bcentral.cl/politicas/presentaciones/consejeros/pdf/2009/jdg17092009.pdf>.
- (2010a). "Macroprudencial Regulation, Financial Stability and Capital Flows", Presentation delivered at *Thirteen Annual International Banking Conference*, Federal Reserve Bank of Chicago.
<http://www.bcentral.cl/politicas/presentaciones/consejeros/pdf/2010/jdg24092010.pdf>.
- (2010b). "El Rol de los Bancos Centrales tras la Crisis Económica", Speech at *International Conference of the Bank of Korea*, Seoul. http://www.bcentral.cl/politicas/presentaciones/consejeros/pdf/2010/jdg31052010_esp.pdf.
- DE GREGORIO, J., and A. TOKMAN (2004). *Overcoming Fear of Floating: Exchange Rate Policies in Chile*, Central Bank of Chile Working Paper No. 302, December.
- DE LA TORRE, A., and A. IZE (2010). "The Aftermath of the Crisis for LAC: Surging Capital inflows in the Midst of Global Imbalances", Presentation at *LACEA Meetings*, November, Medellín.
- DEMIREL, U. D. (2009). "Optimal Monetary Policy in a Financially Fragile Economy", *The B. E. Journal of Macroeconomics: Contributions*, 9 (1), article 15.
- DINCER, N., and B. EICHENGREEN (2007). *Central Bank Transparency: Where, why, and with what effects*, NBER Working Paper No. 13003.

- DINCER, N., and B. EICHENGREEN (2010). "Central Bank Transparency: Causes, Consequences and Updates", *Money Matters: The Law, Economics and Politics of Currency*, 11 (1).
- EIJFFINGER, S., and P. GERAATS (2006). "How transparent are Central Banks?", *European Journal of Political Economy*, 22, pp.1-22.
- ELBADAWI, I., L. KALTANI and K. SCHMIDT-HEBBEL (2008). "Foreign Aid, the Real Exchange Rate, and Economic Growth in the Aftermath of Civil Wars", *The World Bank Economic Review*, 22 (1), pp. 113-140.
- FERNÁNDEZ ORDÓÑEZ, M. (2009a). "Procyclicality in the Banking Activity", *Conference on Pro-cyclicality and the Role of Financial Regulation*, Banco de España and Financial Stability Institute, Madrid.
<http://www.bde.es/prensa/intervenpub/gobernador/mfo040509e.pdf>.
- (2009b). "Crecimiento, Estabilidad y Política Monetaria", Sesión on "Price Stability, Financial Development and Economic Growth", at the Bank of Mexico Conference on *Challenges and Strategies for Promoting Economic Growth*.
<http://www.bde.es/webbde/es/secciones/prensa/intervenpub/gobernador/mfo191009.pdf>.
- GALLEGO, F., L. HERNÁNDEZ and K. SCHMIDT-HEBBEL (2002). "Capital Controls in Chile: Were they Effective?", in L. Hernández and K. Schmidt-Hebbel (eds.), *Banking, Financial Integration, and International Crises*, Santiago: Central Bank of Chile.
- GERAATS, P. (2008). "Trends in Monetary Policy Transparency", Paper presented at the Bank of Canada Conference on *International Experience with the Conduct of Monetary Policy under Inflation Targeting*, July.
- GERTLER, M. (2003). "Commentary: Whither Monetary and Financial Stability? The Implications of Evolving Policy Regimes", in Federal Reserve Bank of Kansas City, *Monetary Policy and Uncertainty: Adapting to a Changing Economy. A Symposium*, Kansas City.
- GÜRKAYNAK, R. S., A. LEVIN, A. MARDER, and E. SWANSON (2007). "Inflation Targeting and the Anchoring of Inflation Expectations in the Western Hemisphere", in F. S. Mishkin and K. Schmidt-Hebbel (eds.), *Monetary Policy under Inflation Targeting*, Santiago: Central Bank of Chile.
- HAMMOND, G. (2009). *State of the Art of Inflation Targeting*, CCBS Handbook No. 29, Bank of England.
- INTER-AMERICAN DEVELOPMENT BANK (2009). *Policy Trade-offs for Unprecedented Times: Confronting the Global in Latin America and the Caribbean*, Washington: Inter-American Development Bank.
- (2010). *The Aftermath of the Crisis: Policy Lessons and Challenges Ahead for Latin America and the Caribbean*, Washington: Inter-American Development Bank.
- INTERNATIONAL MONETARY FUND (2010). *Regional Economic Outlook. Western Hemisphere: Heating up in the South, cooler in the North*, Washington: International Monetary Fund.
- JÁCOMÉ, L. I., and F. VÁZQUEZ (2005). *Any Link between Legal Central Bank Independence and Inflation? Evidence from Latin America and the Caribbean*, IMF Working Paper 05/75.
- KYDLAND, F., and E. PRESCOTT (1977). "Rules rather than Discretion: The Inconsistency of Optimal Plans", *Journal of Political Economy*, 85 (3), pp. 473-491.
- LUCAS, R. (1976). "Econometric Policy Evaluation: A Critique", in K. Brunner and A. Meltzer (eds.), *The Phillips Curve and Labor Markets*, Carnegie-Rochester Conference Series on Public Policy, 1, pp. 19-46.
- MISHKIN, F. S. (2008). "Whither Federal Reserve Communication", Paper presented at the Bank of Canada Conference on *International Experience with the Conduct of Monetary Policy under Inflation Targeting*, July.
- MISHKIN, F. S., and K. SCHMIDT-HEBBEL (2007). "Does Inflation Targeting Make a Difference?", in F. Mishkin and K. Schmidt-Hebbel (eds.), *Monetary Policy under Inflation Targeting*, Santiago: Central Bank of Chile.
- NOYER, C. (2009). *Central Bank in the Financial Crisis*, Speech at *Paris Europlace*, Paris.
<http://www.banque-france.fr/gb/instit/telechar/discours/2009/090703.pdf>.
- (2010). "The Role of Central Bankers in Today's Global Capital Markets", Speech at *World Federation of Exchanges*, Paris. <http://www.banque-france.fr/gb/instit/telechar/discours/2010/The-Role-of-Central-Bankers-in-Today-Global-Capital-Markets.pdf>.
- ORPHANIDES, A. (2009). "Dealing with Crises in a Globalized World: Challenges and Solutions", presented at the Twelfth Annual International Banking Conference on *The International Financial Crisis: Have the Rules of Finance Changed?*
- (2010). "Central Bank Policy Challenges in the Crisis", Paper presented at the Conference on *Financial Interdependence in the World's Post-Crisis Capital Markets*, Global Interdependence Center and Banque de France.
- OSTRY, J. D., A. R. GOSH, K. HABERMEIER, M. CHAMON, M. S. QURESHI and D. B. S. REINHART (2010). *Capital Inflows: The Role of Controls*, IMF Staff Position Note SPN/10/04.
- POWELL, A. (2010a). "LAC Central Banks ahead of the Curve? Financial Regulation and Supervision", presented at the *LACEA Meetings*, November, Medellín.
- (2010b). "Global Imbalances and LAC", presented at the *LACEA Meetings*, November, Medellín.
- SAURINA, J. (2009). "Loan Loss Provisions in Spain", *Revista de Estabilidad Financiera*, 17, pp. 9-26.
- SCHMIDT-HEBBEL, K. (2010a). "Macroeconomic Regimes, Policies, and Outcomes in the World", *Estudios de Economía*, 37 (2), pp. 161-188.
- (2010b). "Inflation Targeting Twenty Years on: Where, When, Why, With what Effects, What lies ahead?", in D. Cobham, O. Eitheim, S. Gerlach and J. F. Qvigstad (eds.), *Inflation Targeting: Lessons Learned and Future Prospects*, Cambridge: Cambridge University Press.
- SCHMIDT-HEBBEL, K., and C. WALSH (eds.) (2009). *Monetary Policy under Uncertainty and Learning*, Santiago: Central Bank of Chile.
- STIGLITZ, J. (2008). *The Failure of Inflation Targeting*, published by Project Syndicate. Available at: <http://www.project-syndicate.org/commentary/stiglitz99>.
- SVENSSON, L. E. O. (1999). "Price Level Targeting vs. Inflation Targeting", *Journal of Money, Credit, and Banking*, 31, pp. 277-295.
- TAPIA, M., and A. TOKMAN (2004). "Effects of Foreign Exchange Intervention under Public Information: The Chilean Case", *Economía*, 4 (2).

- THE WORLD BANK (2010a). *From Global Collapse to Recovery: Economic Adjustment and Growth Prospective in LAC*, Washington: The World Bank.
- (2010b). “Globalized, Resilient, Dynamic: The New Face of LAC”, at *IMF-WB Annual Meetings Presentation*, Washington DC.
- (2010c). “The New Face of Latin America and the Caribbean”, Washington: The World Bank.
- TRICHET, J. C. (2010a). “Macro-Prudential Oversight and the Future of European Systemic Risk Board”, Keynote address delivered at the *European Banking Congress*, Frankfurt.
http://www.ecb.int/press/key/date/2010/html/sp101119_2.en.html.
- (2010b). “Macro-prudential Regulation as an Approach to Contain Systemic Risk: Economic Foundations, Diagnostic Tools and Policy Instruments”, Keynote address delivered at the *European Banking Congress*, Frankfurt.
<http://www.ecb.int/press/key/date/2010/html/sp100927.en.html>.
- (2010c). “Central Bank Cooperation after the Global Financial Crisis”, Video address at the *Bank of Korea International Conference*, Seoul. <http://www.ecb.int/press/key/date/2010/html/sp100531.en.html>.
- URIBE, J. D. (2009a). “Monetary Policy Challenges in Latin America: Some General Principles for Counter-cyclical Monetary Policy”, Comments delivered at the Investor Seminar at the time of the *Inter-American Development Bank Annual Meetings*.
http://www.banrep.gov.co/documentos/presentaciones-discursos/Uribe/2009/Plan_Latino_America.pdf.
- (2009b). “Política Monetaria y Estabilidad Financiera”, presented at the *XX Capital Markets’ Symposium*, Medellín.
http://www.banrep.gov.co/documentos/presentaciones-discursos/Uribe/2009/Simposio_capitales.pdf.
- (2010). “Some Observations on Capital Flows in Emerging Economies”, Speech at *Chatham House City Series 2010 Conference*.
http://www.banrep.gov.co/documentos/presentaciones-discursos/Uribe/2010/conferencia_chatamhouse10.pdf.
- VESTIN, D. (2006). “Price-Level Targeting versus Inflation Targeting”, *Journal of Monetary Economics*, 53 (7), pp. 1361-1376.
- WALSH, C. (2009a). *Inflation Targeting: What have we learned*, manuscript, University of California at Santa Cruz, January.
- (2009b). “Using Monetary Policy to stabilize Activity”, in *Kansas Federal Reserve Bank Symposium on Financial Stability and Macroeconomic Policy*, Jackson Hole, August, Wyoming.
- WEBER, A. (2010a). “Lessons for Monetary Policy from Financial Crisis”, Keynote speech delivered at the *XII Annual Inflation Targeting Seminar of the Banco Central do Brazil*, Rio de Janeiro.
http://www.bundesbank.de/download/presse/reden/2010/20100514.weber_rio.en.pdf.
- (2010b). “Monetary Policy after the Crisis: A European Perspective”, Keynote speech delivered at the *Shadow Open Market Committee (SOMC) Symposium*, New York City.
http://www.bundesbank.de/download/presse/reden/2010/20101012.weber_somc.en.pdf.
- (2010c). *The Reform of Financial Supervision and Regulation in Europe*, Speech delivered at the Institute of International and European Affairs, Dublin.
http://www.bundesbank.de/download/presse/reden/2010/20100310.weber_dublin.en.pdf.

Discussion by Agustín Carstens, Governor Banco de México

Thank you very much. I would like to thank Governor Miguel Fernández Ordóñez, Javier Aríztegui and the organizers for having us here and, especially, for giving me the opportunity to comment on the paper presented by Klaus. As always, Klaus has written a superb paper. He really has captured the essence of something I consider one of the most successful economic phenomena in decades in Latin America, which is, precisely, the process of controlling inflation in this region through institutional building.

I would venture to say that Klaus, José de Gregorio, José Darío, and myself are part of the “crises generation”. Back at the time when we were students, we would be going from one crisis to another. And the only thing we learnt in school was how to deal with different crises. After three decades, and since we are not young any longer, I believe we have learnt a lesson. And not only us, but society in general in Latin America, has learnt a lesson. I think that in most Latin American countries there is now a very strong social consensus about the importance of good policymaking and good macro-policymaking, with absolute respect and understanding of the importance of central bank independence. I would like to give the example of Mexico. Last year, as Klaus showed, we went into a very deep recession. Even then, we were one of the very few countries, if not the only one, to make a fiscal adjustment. We increased the value added tax, the income tax, and other excise taxes. And it was worthwhile because now we are reaping the benefits of it. This year, just a few months ago, when the government presented the 2011 budget, the main opposition party wanted to reduce the value added tax. There was uproar in society, with sectors of public opinion claiming that a lower VAT was a bad idea. This just shows how society changes as a result of persistent crises.

During the last half of the 20th century, Latin America had several lost decades in economic terms, and this experience is what has driven the current social and political response. But a key point, and I believe Klaus develops this idea very nicely in his paper, is that a cornerstone in such process has been institutional building in central banking: giving the central bank a clear, transparent mandate and operational independence, with the instruments to achieve such mandate. The benefit of granting autonomy to the central bank comes not only from having an entity in the state fully devoted to pursue price stability, but also due to the discipline it induces on other macro-policies, mostly fiscal policy. Our governments do not have a loose budget constraint any longer, thus they have become more fiscally responsible. The institutional building exercise has therefore been very powerful, with very forceful externalities in other public policies areas as well.

Reading Klaus’s paper and discussing it here at Banco de España brought back fond memories. In the early nineties, when Banco de México embarked on moving both to an inflation targeting scheme and an independent central bank, we received a lot of technical support from Banco de España. I remember the discussions with José Luis Malo de Molina and José Viñals, because at that time, Banco de España was one of the pioneers of inflation targeting. Another coincidence is that our independence law was pretty much modeled after that of Banco Central de Chile. It was real fun reading the retrospective about all of these issues, written by one of the top Chilean economists.

I must say that it is very difficult to make comments on Klaus' papers because they are always so complete and enlightening. Rather than criticizing, I would like to highlight certain aspects that are implicit in his presentation, but require more emphasis.

I think that one of the major breakthroughs in Latin America during the last decade was the successful adoption of floating exchange rate regimes. If we recall the discussions in the 70s, 80s and even in the early 90s, to think of a small open economy moving into a floating exchange rate regime was pretty much like jumping into the unknown. The conventional wisdom among economists was that such a regime in a small open economy with volatile capital flows would not work, especially as an exit strategy from a fixed or managed regime. But history proved them wrong. Some countries had a more orderly transition into a floating exchange rate regime, as Chile, but others, like Brazil and Mexico, had to enter into it as an inevitable option. By developing derivatives markets, having more transparent operation, and adopting adequate regulatory and supervisory practices, the floating exchange regimes have worked quite well – price discovery is efficient and exchange rates have not been more volatile or unstable than elsewhere –. The huge benefit that flexible exchange rates brought to the region was that – in combination with consistent macro management – it acquired an efficient absorber to external shocks. That was obvious during the last years.

Certainly, this was not only luck or coincidental; it came along with very thoroughly revamped macro policymaking, as I have already pointed out. But this revamping has been the combination of stronger macro policies together with the regime's flexibility. And this has truly enhanced the capacity of the region to face extremely severe shocks.

One really cannot stress enough the importance of having the degrees of freedom that come with a flexible exchange rate regime. The other day in an academic presentation, a professor of a Mexican university was explaining the difference between a fixed and a flexible exchange rate regime. He illustrated it with a very good example. He said to imagine that you wanted to paint a house. When you have a fixed exchange rate, the brush is fixed and you move the house. When you have a floating exchange rate, you have the house fixed and you move the brush. He then asked which one we thought was the best way to do it. In this setting the answer is obvious. When you have the constraints of a fixed exchange rate you basically have constantly to adjust everything else in the economy in order for that exchange rate to be sustainable at a certain level, and if you do not have that capacity, then you really run into trouble, as a large list of currency crisis in Latin America demonstrates it.

The flexible exchange rate regime worked particularly well in the most recent crisis, because it operated in the context of consolidated inflation targeting schemes in most Latin American countries. In the past, under fixed or managed exchange rate regimes, when an exchange rate variation would take place the impact was immediately and fully passed-through to wages and inflation, due to the lack of a consistent macro framework. This meant no real exchange rate correction, only more inflation. No wonder these episodes were so costly for the region. More recently, given that most countries have an appropriate nominal anchor by means of consolidated inflation targeting schemes, nominal exchange rate variations has meant to a large extent real exchange rate adjustments, which in turn have played the role of shock absorber in response to external shocks. Precisely our recent experience illustrates a textbook adjustment through the exchange rate mechanism. I agree

with Klaus that the recent world crisis represented a “severe test” for the region, and we sailed through with flying colors.

Moving to another issue I do not feel comfortable with the argument that Klaus presents that capital controls and exchange rate intervention are appropriate second-best policies. On my list they would be more like fourth- or fifth-best. He recognizes that the evidence is not very strong about how successful they are. In my opinion, especially in the case of exchange rate intervention, most of the time this policy does not work because, at the end of the day, it does not allow the markets to adjust. Under these circumstances the incentives for resources to keep flowing into the economy will persist, with the added disadvantage that the costs inflicted by the policy will be ever increasing, given the huge carry costs of excessive international reserves. The only justification I see for “n-best” solutions is the potential usefulness they might have temporarily to staunch political pressures on the central bank. Sooner or later exporters will bitterly complain about non-equilibrium real exchange appreciation. By adopting an “n-best” solution the central bank has at least something to show them: “well, we have put this capital control in place, we are intervening” so it takes off some of the pressure. But, at the end of the day, it will not make much of a difference given the proven inefficiency of these set of measures. The bottom-line is that a nation is better off if it does not introduce distortions in the economy by pursuing short-term goals that might have long-term consequences. In the case in point we all know that the region will need external capital for years to come and, ultimately, you do not want to gain a bad reputation that might scare them away on a more permanent basis.

Next I would like to comment on the unconventional monetary measures that were implemented in many parts of the world as part of the crisis response. Klaus basically views them as instruments to provide liquidity assistance. Looking at them from the other side of the coin, these measures really represent policies implemented by central banks to relief markets from excessive risk. From this point of view central banks became “risk-absorbers of last resort”. In the past central banks did not face the need to play this role since securities and derivatives in financial markets were not that relevant, given that financial intermediation was dominated by banking systems. But more recently the amount of risk transformation in financial markets exploded, and now we know that under the existing rules and regulations markets have limited capacity to carry all that risk when volatility increases substantially, a situation which in turn fed back into more volatility, threatening the sustainability of many financial intermediaries. To short-circuit these processes central banks, under the excuse of the need to provide liquidity assistance, have absorbed enormous amounts of risks. I do not believe that this role of “risk absorber of last resort” should become permanent in central banks. We will have to work carefully in the future to prevent this, and our success will depend on how we regulate markets on the years to come.

From a broader point of view, something that concerns me is that as a result of the crisis, many central banks have ended carrying an abnormally high load of responsibility. We central bankers have extended ourselves into many areas. Many central banks are now tackling how to stimulate growth, manage risk absorption, liquidity provision, among other tasks, on top of the traditional role of monetary authority pursuing price stability. A huge challenge for many central banks in the future will be how they “exit” many of these roles and focus on the objectives they have the instruments to achieve. Hopefully this task does not end being and exercise of trying to put the genie back inside the bottle.

Finally, I would like to say that I agree with many of Klaus's concluding remarks. Fiscal responsibility is very important, as well as financial regulation. Likewise, I share his point of view that central banks should embrace more forcefully in their mandates the goal of financial stability. I thus believe that we have important challenges ahead. Papers like the one presented by Klaus provide valuable food for thought on how to address such challenges.

Discussion by Athanasios Orphanides, Governor Central Bank of Cyprus

It is a great pleasure to discuss this paper on the changes, achievements and challenges of central banking in Latin America by Klaus at this Eurosystem and Latin American central banking gathering. I'm going to start by noting that Klaus and I have something in common: we are both Rudi Dornbusch students. As a student of Rudi during the 1980s, I learnt quite a bit about the monetary experiences of Latin America. Rudi routinely used current events and present crises as case studies to explain the success and failure of monetary policy regimes and institutional arrangements. He also used examples to contrast politically induced short-termism against policies that would enhance welfare over the long haul. During the 1980s there were indeed plenty of examples. However, not all of the examples were from Latin America. Some concerned what is now the euro area. For example, after researching debt and deficit data for Rudi at the end of the 1980s, it was hard not to be impressed by the challenges then facing Belgium. I mention this to cheer us up a little bit because it's never pretty when events force us to refresh our knowledge of debt deficit dynamics, but it's reassuring to know there are examples of countries that managed to come back from the brink.

Turning back to Latin America, the focus of Klaus' paper, some knowledge of historical experiences is, I think, very useful to gain a proper appreciation of the truly remarkable advances in central banking practice that have been observed in the region over the last two decades. In his survey, Klaus does an excellent job of explaining key changes and achievements, and then ends the paper by discussing some challenges for central banks both in Latin America and elsewhere. In my discussion I will briefly focus on two areas: first, on the sources of the improvement seen in Latin American central bank practice that Klaus discusses, and the inflation targeting framework of monetary policy that he uses quite often in that regard; second, I will talk a little bit about some of the challenges he identifies going forward.

Regarding the changes in central banking in Latin America, Klaus uses the inflation targeting (IT) framework of monetary policy as an organising device for much of his discussion, even for non-inflation targeting countries. He considers it to be a useful device to that end and I find this quite helpful as well. But I must stress that I have doubts about the view that the IT framework is necessarily superior to other frameworks. For example, Klaus suggests that IT may even be superior to the price stability approach followed by the ECB. I would say that what matters most is an institutional design that retains some crucial characteristics that we can all identify as being essential for good policy practice. What I think is going on is that those crucial characteristics that Klaus does identify are actually shared both by the ECB approach and the canonical inflation targeting framework that he discusses. Here I very much agree with Klaus on the bottom line in describing the changes and achievements in Latin America: namely, that we have observed improvements in central banking practice that have placed many Latin American central banks in the group of central banks that can claim to be very close to the benchmark of best practice, precisely because these key characteristics have been embedded in the policy framework. This couldn't have been further away from being the case back in the 1980s and is thus quite an achievement.

Now what are the most important elements for best practice? In my view there are two. Central bank independence and the clear commitment by both the state and the central bank that price stability is the primary mandate of the central bank. Independence must be both in its legal and economic form, and Klaus presents very nice evidence on how this has worked for Latin America. He has transparency in policy high on his list, and I agree with him. However, I will give you a somewhat different interpretation of the aspect of transparency that is most important. Klaus interprets transparency as policy bound by *ex ante* rules and monitored with *ex post* accountability. I very much favour rules as guides for policy discussion, but I believe that the key here is a clear explanation of the monetary policy framework, including the goals of policy and how this is going to be achieved. This interpretation of the rule is a little bit broader than what Klaus has in mind. The key focus should be on the one predominant objective that monetary policy can achieve. That is, the crucial feature regarding transparency is what the price stability objective is for the central bank, and how the central bank pursues it. This is the broader definition that I interpret as equivalent of what Klaus calls the rules approach. The most important element of good policy practice by an independent central bank, regardless of whether it is called an inflation targeting central bank or not, is a monetary policy framework that focuses maximum attention on the objective of price stability and indeed forces close monitoring of current and prospective aggregate prices, both as a means to guiding current policy and as a means to evaluating past policy action. I take this to be the most distinguishing characteristic of inflation targeting and also of the ECB strategy, even though the ECB is not an inflation targeting central bank. By encouraging an ongoing open dialogue between the central bank, the government, the public and financial market participants, the inflation targeting approach leaves little room for neglecting price stability, further reinforcing its unique focus. It is for these reasons that inflation targeting may be particularly effective as a monetary policy framework for central banks that are institutionally challenged in some way before they adopt it. For instance, because they lack a history of political independence or because they have an impaired credibility in pursuing monetary stability-oriented policies. Latin America in the 1980s fits this description – the initial condition that would benefit most by moving in that direction.

The intrusion of politics into monetary policy decisions as well as the pursuit of multiple and possibly conflicting objectives are potential sources of such impaired credibility with regard to a central bank's commitment to achieving and maintaining price stability. Inflation targeting helps guard against these forces. Klaus argues, and I am in full agreement, the reason the focus on a clear definition of price stability is crucial is that by being so transparent on this, the central bank can help anchor inflation expectations in the best possible manner. This in turn has multiple benefits for the central bank. For example, it allows the central bank flexibility to respond to other disturbances in the economy thus not only achieving and maintaining price stability but also contributing to economic and financial stability. This action is what Klaus demonstrates with the evidence he provides when he compares the response of central banks in Latin America and economic outcomes that are associated with the 2008 crisis and with the others that occurred ten years earlier. The comparison is very instructive on the benefits of having these institutional improvements. As he shows domestic policy helped soften the blow to the economy in the most recent episode, and that was not the case at all in the episode ten years earlier. This is a very useful demonstration that best practice with an independent central bank, and with a clear definition of price stability as its mandate, does indeed deliver better outcomes.

I am somewhat more ambivalent about Klaus' use of adjectives to describe inflation targeting, i.e. "partial" versus "fully fledged" IT, even what he calls "flexible" IT. I also disagree with his claim about another adjective – "explicit". Specifically, I do not agree with him when he says "that explicit IT dominates other successful monetary regimes ... like those pursued by the U.S. Federal Reserve, the European Central Bank ...". Hence to the extent that a useful metric of success is how well-anchored inflation expectations are, I do not interpret the evidence as suggesting that the performance of IT central banks dominates that of the ECB. My greatest concern here is with the so-called flexible inflation targeting framework, used to target not just inflation but multiple objectives at the same time. Klaus recommends that central banks discuss all the unobserved variables someone would put in a model forecast to design optimal control and IT-type policies. This includes very explicitly the natural rate of interest, the natural rate of output, the natural rate of unemployment, the natural or equilibrium exchange rate, the natural or equilibrium commodity prices, and so on. My fundamental disagreement here is that I would argue that robust policy should stay clear from such concepts as much as possible to achieve best results regarding price stability. The problem with an approach that allows or even encourages policy measures to try to stabilise output and unemployment in addition to maintaining price stability is that it can easily transform into the sort of fine-tuning approach that achieves none of its multiple targets well. Let us remember that we experienced such failures in the past and, indeed, a starting point for understanding the useful elements of inflation targeting for me is to comprehend the sources and magnitude of the failure in some of the countries that adopted it. I find the case of New Zealand, the pioneer of the approach, particularly instructive.

Prior to the mid-1980s, New Zealand had the unenviable record of one of the highest rates of inflation in the OECD. Inflation exceeded 10% per annum for almost an entire decade. According to Don Brash, the Governor who implemented inflation targeting at the Reserve Bank of New Zealand, the problem with the price stability mandate was that it was only one of several goals. As he put it: "The legislation under which we operated required us to have regard for the inflation rate, employment, growth, motherhood and a range of other good things" [Brash (1999), p. 36]. The Reserve Bank was also hampered by its lack of operational independence.

These weaknesses were corrected by the *Reserve Bank of New Zealand Act, 1989*. The price stability remit was given prominence. As section 8 of the Act states: "The primary function of the Bank is to formulate and implement monetary policy directed to the economic objective of achieving and maintaining stability in the general level of prices". No ifs, no buts, no other things. Section 9 of the Act requires a numerical target for inflation to be agreed between the Governor and the Minister of Finance, and section 10 ensures the Bank's operational independence.

The *Reserve Bank of New Zealand Act, 1989* thus describes the two defining characteristics of the economic and inflation targeting approach where we started from. First defining a hierarchical mandate for the central bank with price stability, a clear definition of price stability, and second, providing the central bank with the independence to pursue this objective. And this is what many others followed in one way or another. These are precisely the two characteristics that Klaus stressed as crucial and which are common to the institutional design of the ECB.

Let me now turn to Klaus' discussion of some challenges for the future. I would focus on just three elements.

First, the implications of the zero lower bound on the short-term nominal interest rate. Here Klaus seems to take it for granted that monetary policy is constrained by the zero lower bound, and thus explores ways to reduce the likelihood of hitting the lower bound. For example, he talks about the possibility of raising the numerical definition of price stability which, as he recognises, creates other problems. On this point the underlying premise is, in my opinion, flawed. It is based on the so-called liquidity trap, suggesting that no additional monetary policies can be implemented once the short-term nominal interest rate is close to zero. But as we know, for example from Brunner and Meltzer's arguments from the 1960s [Brunner and Meltzer (1968)] and by others since, this is a conceptual mistake. The liquidity trap concept is seriously flawed because it can only be proven to hold in a model under some unrealistic assumptions, and is understood to be false once those assumptions are relaxed. Such academic exercises can be useful to sharpen discussions, but they can become quite harmful if they permeate into policy debates. In practice, non-standard measures can be employed to engineer additional monetary policy easing if and when needed at the zero bound, and there is no need to abandon a definition of price stability that has otherwise been deemed to be perfectly fine just in order to protect against the possibility of the zero bound.

The second element is whether a central bank should lean against the wind to protect against nascent imbalances. Here the discussion in the paper needs some clarification. The answer may be different depending on whether the central bank has, in addition to monetary policy, a role in prudential supervision or not. Klaus actually alludes to this, making the distinction between macro-prudential measures and monetary policy. In my view, central banks should have banking supervision responsibilities also, but not all central banks do. For those central banks that do have the additional tools that can be used for macro-prudential purposes, then clearly those tools must be incorporated into the broader stability-oriented policy design.

There are two examples that help illustrate how the impact of the credit boom prior to the most recent crisis could have actually been reduced by central banks employing prudential supervision tools. One is the practice of dynamic provisioning, i.e. asking banks to raise provisions in good times. The boom may thus be tempered and bigger shocks can be absorbed in bad times. This worked well in Spain. The second is macro-prudential adjustment of loan-to-value ratios. This was adopted with some success in my own country, Cyprus, in 2007 and 2008. In July 2007, one month before the onset of the crisis, while the real estate party was in full swing, we tightened conditions on real estate loans, capping the maximum loan-to-value ratio, except for owner-occupied housing, to just 60%. Some developers took the hint and cut back on their plans. Others complained quite a bit and we faced a lot of criticism, which was evidence that the policy was effective. This policy action was one of the reasons why our banking system was shielded from the shocks and aftershocks of what happened following September 2008. Although we had a real estate price boom it was tempered and the banking sector was protected from it.

I will conclude with a remark about another challenge raised by Klaus: fiscal policy. Here I urge Klaus to flesh out more the successes in Latin America. I find particularly important the discussion regarding the establishment of fiscal councils and fiscal rules. Klaus is certainly right; the way forward is conceptually straightforward but politically fraught with difficulties. This appears to be a crucial missing link in designing an institutional framework that ensures stability going forward.

REFERENCES

- BRASH, D. (1999). "Inflation targeting: an alternative way of achieving price stability", address on the occasion of the *50th Anniversary of Central Banking in the Philippines*, 5 January, Manila.
- BRUNNER, K., and A. H. MELTZER (1968). "Liquidity traps for money, bank credit and interest rates", *Journal of Political Economy*, 76 (1), pp. 1-37.
- RESERVE BANK OF NEW ZEALAND (1989). *Reserve Bank of New Zealand Act*.

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