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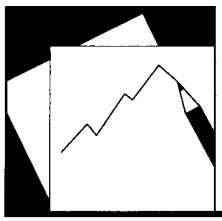

IMF Working Paper

Modernizing Bank Regulation in Support of Financial Deepening: The Case of Uruguay

Gustavo Adler, Mario Mansilla and Torsten Wezel

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Modernizing Bank Regulation in Support of Financial Deepening: The Case of Uruguay

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Abstract

This paper studies how Uruguay's regulatory framework was gradually strengthened to address shortcomings identified during the 2002–03 crisis, to align with international standards and, more recently, to deal with cyclical pressures resulting in an acceleration of bank lending. In particular, regulatory reforms pertaining to loan classification and provisioning as well as liquidity requirements are reviewed and evaluated against best practices. The paper concludes that prudential regulation in Uruguay now generally conforms to high standards while also embracing innovative elements such as dynamic provisioning.

JEL Classification Numbers: G21, G28

Keywords: Credit growth, credit risk, loan classification, loan provisioning, bank liquidity, regulatory reform

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I. INTRODUCTION

As recent episodes in a number of emerging market countries have shown, pronounced credit cycles can lead to financial sector instability in the form of rising loan delinquencies and, ultimately, in an inadequate level of capital, prompting bank failure. In addition, rapid credit growth tends to fuel asset price bubbles, create domestic demand imbalances, and affect the credit culture. This highlights the importance of having a prudential framework in place that helps identify and contain credit risk and other vulnerabilities in financial intermediation. In particular, it is key for regulators and bank supervisors alike to understand the underlying causes of an episode of rapid credit expansion to assess whether credit developments respond to market frictions such as distorted incentives and implicit guarantees that could lead to the buildup of vulnerabilities, or whether they merely reflect a healthy increase in financial deepening.

Whereas market anomalies contributed to rapid credit growth in many countries in Central and Eastern Europe, the improvement in fundamentals pushed credit to private sector relative to GDP above its long-term trend in Latin America (IMF, 2007). The latter appears to have been the case in Uruguay as well. After several years of depressed levels following the 2002-03 financial crisis, credit growth accelerated sharply in 2007-08—albeit from a low basis—reaching growth rates of about 40 percent by mid-2008. This credit expansion, which was mostly driven by rapidly growing consumer and corporate loans, has since moderated in line with the weakening of the global economy but arguably also thanks to the strict regulatory framework that the Uruguayan authorities have gradually put in place.

This paper contributes to the literature by studying the evolution of the prudential framework in Uruguay after the 2002-03 crisis and particularly in response to rapid credit growth since 2006. The case study approach this paper takes examines how the pillars of a regulatory framework were developed throughout a full credit cycle that began after the 2002-03 crisis and came to an end with the onset of the global economic crisis in late 2008. Particular emphasis is placed on assessing the effectiveness of the regulatory framework in containing credit risk exposures at banks.

We find that the changes in Uruguayan regulations pertaining to loan classification, provisioning and liquidity requirements have been elaborate and comprehensive, covering the main aspects of credit risk exposure and other intermediation risks. The regulatory framework has evolved gradually over time, first in response to the financial crisis of 2002-03 and thereafter in line with international regulatory initiatives as well as credit market developments, which suggests in part a learning experience. In a regional comparison, Uruguay's loan quality standards are relatively stringent, and its liquidity regime is more refined. Other characteristics such as dynamic provisioning and stress-testing debtor's repayment capacity round off the system, and make widespread bank distress less likely even in the aftermath of a credit boom that results in higher loan impairment.

The paper is organized as follows. Section II provides some background information on recent credit expansions and regulatory responses that country authorities have adopted. Section III studies recent developments in the Uruguayan credit market, including an analysis of the funding sources and credit allocation to individual industries as well as currency and maturity aspects, and it describes the risks posed by sustained credit growth. Section IV analyzes the scope and functionality of the prudential framework as it has developed since the 2002-03 crisis. More specifically, regulations aiming to contain the risks of rapid credit growth are reviewed against practices elsewhere in Latin America, notably those governing loan classification, provisioning and liquidity requirements. Section V concludes.

II. BACKGROUND

Credit cycles have been the focus of a vast branch of the economic literature, as episodes of rapid credit growth have often led to the buildup of vulnerabilities, notably over-indebtedness of households and enterprises relative to their longer-term earnings potential, and, as a consequence, rising credit and liquidity risks for the financial sector in the event of an economic downturn. Excessive lending may arise from different forms of market frictions—distorted incentives in financial intermediation, explicit or implicit government guarantees, asymmetric information problems, etc.—but often leads to similar outcomes: a loosening of lending standards as well as rising asset prices that relax collateral constraints. Eventually, as credit and economic conditions worsen, projects fail to deliver an appropriate rate of return and non-performing loans increase. This, in turn, leads to distress in the banking system and often to a financial crisis.

The origins of credit expansions are specific to country or regional circumstances, but certain commonalities have evolved in recent years. Studying the dynamic credit developments in Central and Eastern Europe,[2] Arcalean et al. (2007) and Sirtaine and Skamnelos (2007) point to the role of (i) "transition-related" factors such as deregulation, privatization and legal reforms; (ii) "demand" factors, i.e. financial deepening caused by rising disposable incomes; (iii) "policy-related" factors such as fixed exchange rates promoting foreign currency borrowing as well as government loan or interest subsidies; and (iv) "macroeconomic" or "cyclical" factors beyond pure catching-up, related to higher credit demand in an upturn as well as low real interest rates and exchange rate appreciation. Hilbers et al. (2007) add over-optimism in terms of unrealistic projections of borrowers' future repayment capacity.

[2] In other parts of the world credit growth was generally less dynamic. While some countries of the Middle East, North Africa and Central Asia did experience relatively strong credit growth that was induced by economic growth and catching-up effects (Crowley, 2008), credit growth in East Asia was rather muted during the first half of this decade, not least due to the aftermath of the boom-bust cycle of the 1990s (Koh et al., 2005). In Latin America, credit growth was rather slow during that same period, which in part may have been owed to the adoption of Basel I capital standards instilling a somewhat greater sensitivity of lending to nonperforming loans and banks' regulatory capital positions (Barajas et al., 2005).

Regulatory responses to fast credit growth have varied across regions, ranging from macro-prudential measures such as monetary tightening and prudential regulation to micro-prudential action such as improvements in supervisory practices and administrative measures to curb lending at individual banks. In Central and Eastern Europe, the prudential infrastructure of the financial sector was partly upgraded in advance of the current crisis, notably by the establishment of credit bureaus, the adoption of international financial reporting standards, and the strengthening of creditors' rights and insolvency frameworks. However, prudential weaknesses have visibly emerged, most prominently a lack of tools to measure and manage credit risks as well as adequate cooperation between home and host country supervisors (Sirtaine and Skamnelos, 2007). Faced with a rebound of credit to households including mortgages, Asian regulatory authorities took steps to implement more forward-looking risk-based approaches to bank supervision, including mandating improved risk management practices at banks. Despite this regulatory effort, weaknesses in loan classification persist, leading to an understated level of non-performing loans (Adams, 2008).

While a high rate of credit growth may be a source of concern, the fundamental risks for the banking sector (and the economy at large) do not necessarily emerge when evaluating typical aggregate financial indicators, many of which may be backward-looking and do not provide a clear sense of the buildup of risks in the banking system. Determining the prudential risks posed by strong credit growth and the appropriate policy response requires a more detailed analysis including (i) disaggregating headline figures by type of borrower and, within the corporate sector, by type of industry; (ii) assessing the risks associated with foreign currency borrowing, especially of unhedged foreign currency borrowers; and (iii) pinpointing other repayment risks due to short maturities and interest rate fixation periods (Hilbers et al., 2007). The following section undertakes such an analysis for the Uruguayan credit market.

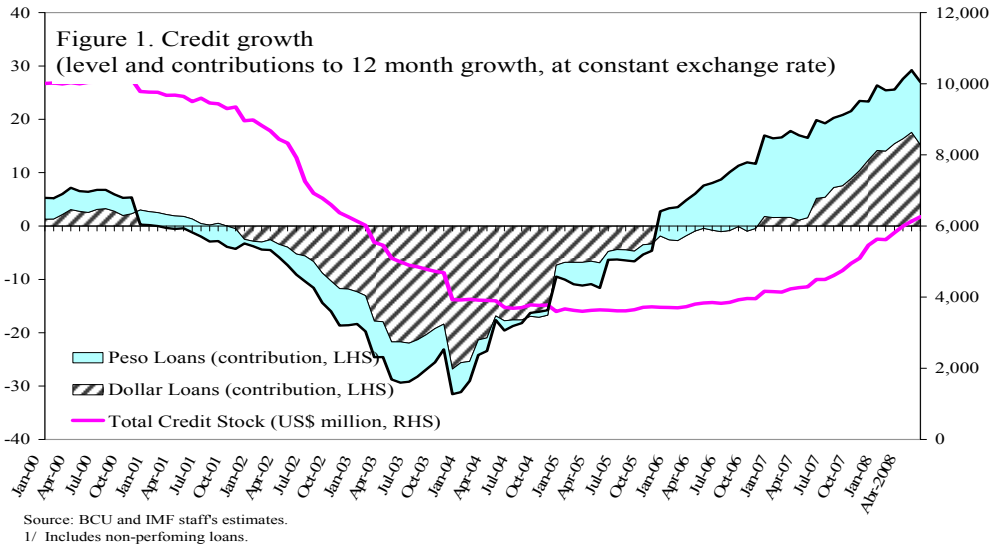
III. Characteristics of the Uruguayan Credit Market

A. General Developments in Bank Lending

Supported by investment-grade status and a large presence of foreign banks, Uruguay was a regional financial hub during the 1990s, often attracting capital flows in times of turbulence in neighboring countries. By 2000 its banking system ranked second in the region in terms of financial deepening (second only to Chile), featuring a credit-to-GDP ratio of 51 percent. In 2002-03, however, a massive drop in non-resident deposits—triggered by the crisis and the deposit freeze in Argentina—subsequently also affecting the sentiment of local depositors, led to a sharp fall in funding from non-residents of about 78 percent. In turn, this caused a contraction in domestic credit to the non-financial private sector (NFPS), which bottomed out at 24 percent of GDP in 2004. Thereafter, domestic credit stagnated for a few years, reflecting both demand factors (post-crisis risk aversion and low investment-related demand) and supply factors (the need to clean up banks' balance sheets, and stricter prudential

regulation, particularly for public banks).[3] Despite a recovery in available funding—as resident and some non-resident deposits returned to the system—domestic credit remained largely depressed, hovering between 24 and 33 percent of GDP during 2003-06. A tightening in prudential regulation precluded public banks with a large presence—particularly the public mortgage lender *Banco Hipotecario del Uruguay* (BHU)—from expanding their credit portfolios, and many private banks chose to intermediate low-interest-bearing dollar deposits into low-risk foreign assets.

Between late 2006 and the middle of 2008, there was a marked turnaround in lending conditions, with credit to the NFPS expanding by 50 percent in dollar terms (or 36 percent when adjusting for exchange rate variations[4]) and most of the hike occurring in the 12 months to June 2008 (27 percent growth at a constant exchange rate; see Figure 1). Furthermore, if non-performing loans—the bulk of which corresponds to loan delinquencies of BHU—are excluded, the growth rate between July 2007 and June 2008 reached 39 percent (at a constant exchange rate).



Source: BCU and IMF staff's estimates.
1/ Includes non-perfoming loans.

A number of factors contributed to the resumption of credit, including (i) the improvement in the balance sheet of the dominant (state) bank *Banco de la República Oriental del Uruguay* (BROU) and the gradual normalization of its lending operations; (ii) rapidly rising domestic deposits; (iii) falling interest rates in the United States, which induced banks to shift their investments from foreign to local assets; (iv) rising domestic incomes—reflecting several years of high growth and a recovery of real wages—as well as favorable growth prospects

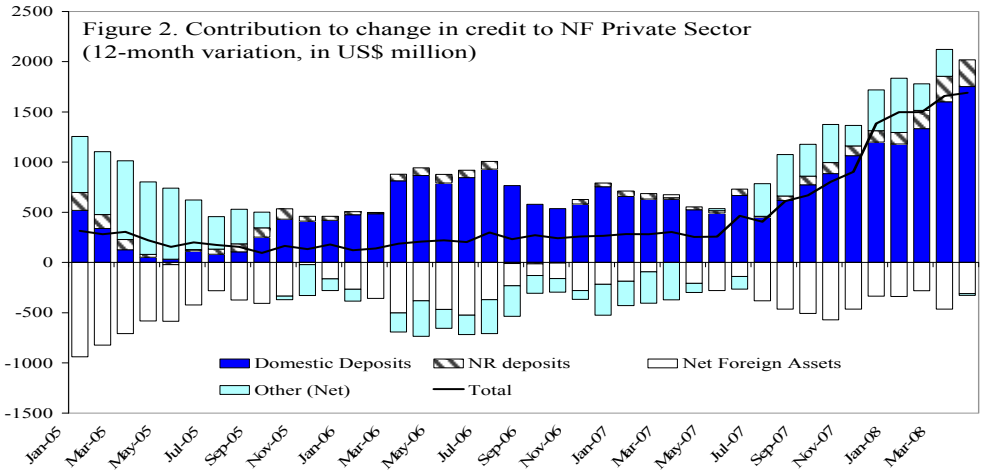
[3] See Canales-Kriljenko and Gelos (2006).

[4] Growth rates refer to stock of credit to the NFPS, including non-performing loans. Figures exclude credit extended by "Administradoras de Crédito", as these operate outside the banking system.

bolstered by prudent macroeconomic policies and a booming environment for Uruguayan exports; and (v) improving firms' balance sheets which made them attractive to lenders.[5]

B. Bank Funding and Credit Allocation

Evidence from banks' balance sheet data suggests that in 2005-2006 a significant share of new available funding was invested in assets other than credit to the non-financial private sector (see Figure 2).[6] Both net foreign and net domestic assets increased significantly during this period, although the latter included large deposits at the central bank, which were subsequently invested abroad. For example, during 2005-06 the US$1.3 billion increase in deposits (and US$0.3 billion in equity) was accompanied by an increase in net foreign and domestic assets of US$1.1 billion (other than credit to the private sector) and an increase of domestic credit of only about US$0.5 billion. From end-2006 onwards, however, large deposit increases of about US$2.3 billion (and further equity gains of about US$0.7 billion) were mirrored by a US$1.8 billion domestic credit expansion and a lower relative accumulation of other assets (US$1.2 billion).[7]



On the demand side, credit growth was mainly driven by consumer and corporate loans. While the most impressive growth rates were observed in mortgages (above 300 percent in the 12 months to April 2008) and auto loans (above 100 percent), the base for this credit growth was very low initially, as credit for these segments had been depressed for several years. Within corporate loans, credit to tradable-good sectors (agriculture, mining and

[5] See Licandro (2006).

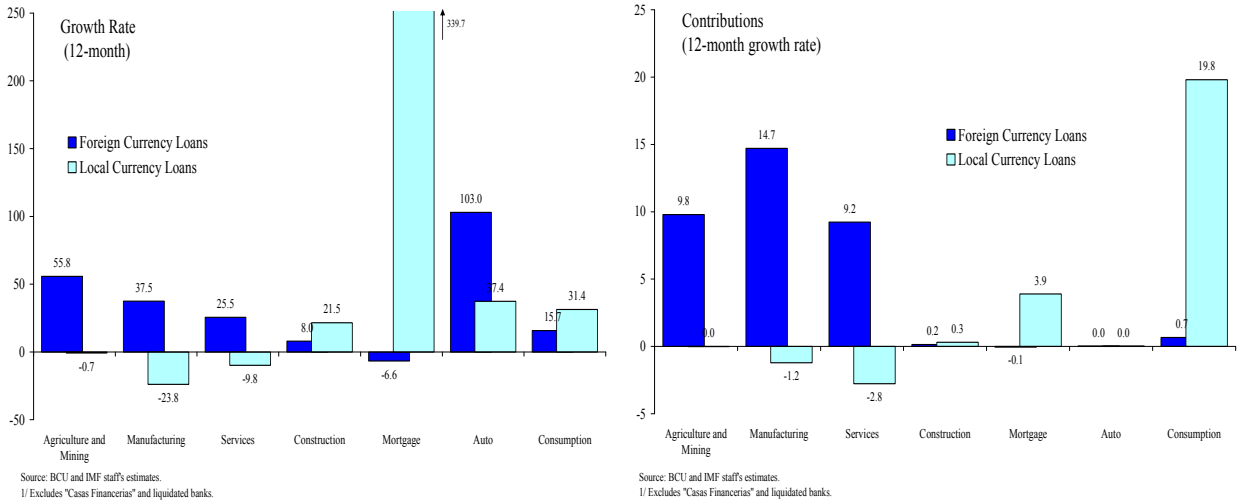
[6] The contributions to credit growth are computed as:

Δ Credit NFPS = Δ Deposits NFPS + Δ Non-resident Deposits – Δ NFA + Δ Equity – Δ (Other domestic) assets, where NFPS refers to the non-financial private sector and NFA refers to net foreign assets.

[7] Figures include valuation effects.

manufacturing) dominated the expansion, although credit to the service sector also grew considerably (see Figure 3).

Figure 3. Credit growth by sector and currency, April 2008
(at constante exchange rate)



C. Currency and Maturity Structure

Dollarization continues to be a salient feature of financial intermediation in Uruguay, although it fell somewhat in recent years—from 65 percent of total credit in 2000 to 58 percent in 2008 (including BHU, see Figure 4). However, this change mainly reflected a drop in dollar-denominated credit of public banks from 50 percent to 32 percent, whereas private banks' dollarization remained broadly constant at around 80 percent. This seemingly different pattern, however, reflects credit market segmentation as private banks directed their activities towards sectors that are naturally hedged against exchange rate movements (corporates in the traded-goods sector), while public banks focused on consumer credit.

Indeed, a disaggregation of credit by receiving sector (Figure 5) suggests that dollar loans were extended mainly to the tradable sectors, as opposed to peso loans going mostly to consumers.[8] The service sector with its high share of foreign currency loans seems to be the exception to this pattern, although this segment is likely to encompass a number of activities closely associated to the tradable sector. A currency mismatch indicator used by the Superintendency of Financial Services (SSF) shows loans to non-tradable sectors at about one-third of total credit.[9]

[8] This currency matching likely reflects binding prudential regulation that requires demanding stress tests, including under exchange rate shocks, on borrowers' ability to service loan obligations (see section IV.D).

[9] The SSF came into being in 2008 by merging the regulators of financial intermediaries, insurances and securities. For the methodology used in calculating this mismatch indicator see Sander et al. (2008).

Figure 4. Characteristics of Bank Lending

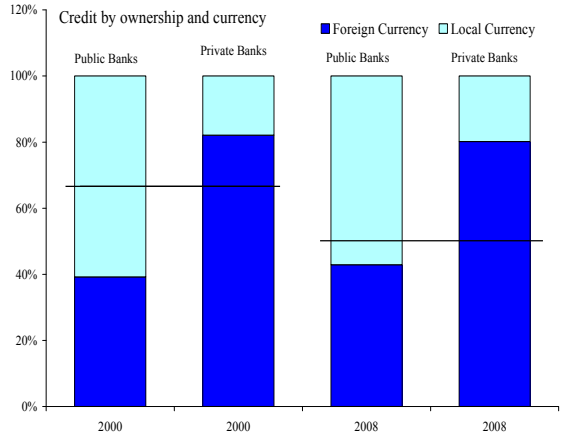
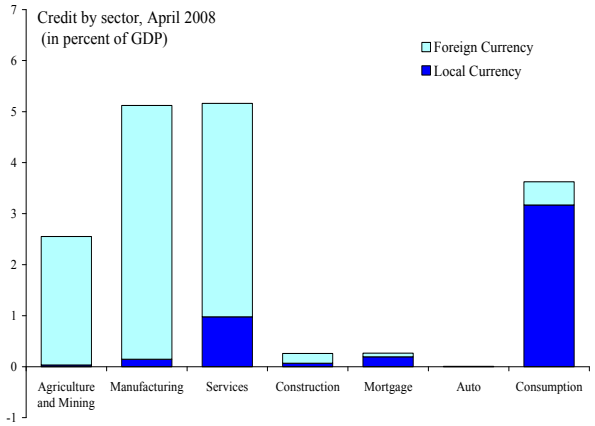


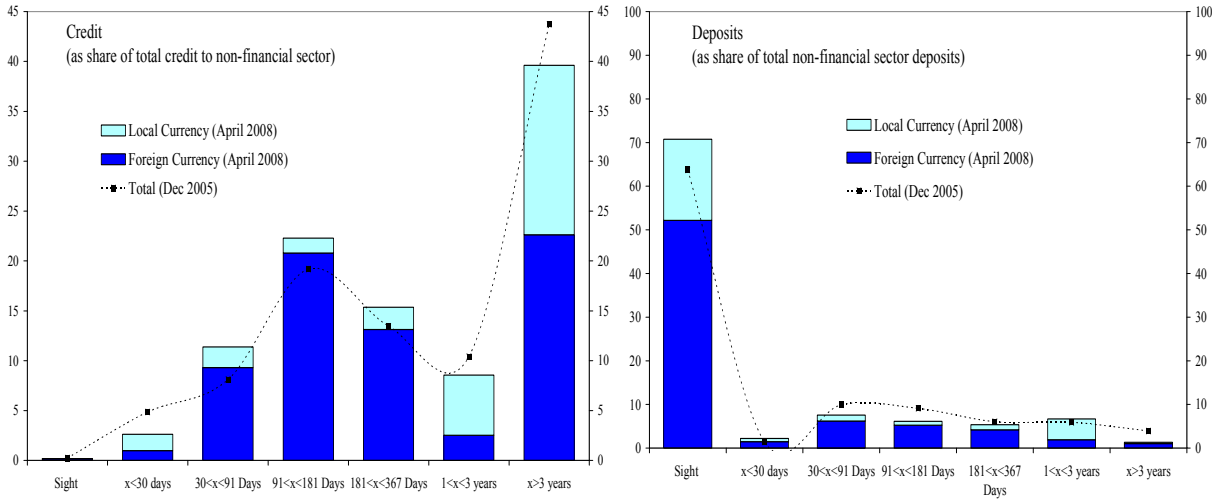
Figure 5. Breakdown of Lending by Sector



Note: Horizontal lines indicate overall averages.

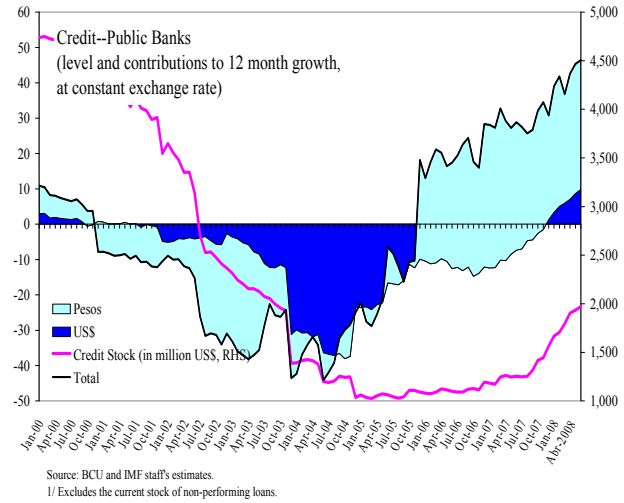
The maturities of loans to the non-financial private sector generally remained low throughout the expansionary period, with about 60 percent being of 3 years or less (Figure 6). There is also evidence of a slight shortening of maturities between 2005 (before the pickup in credit) and mid-2008, possibly reflecting the resumption of (short-term) consumer lending but also maturity mismatch restrictions, given that deposits continued to have very short maturities.

Figure 6. Currency and Maturity Structure, April 2008

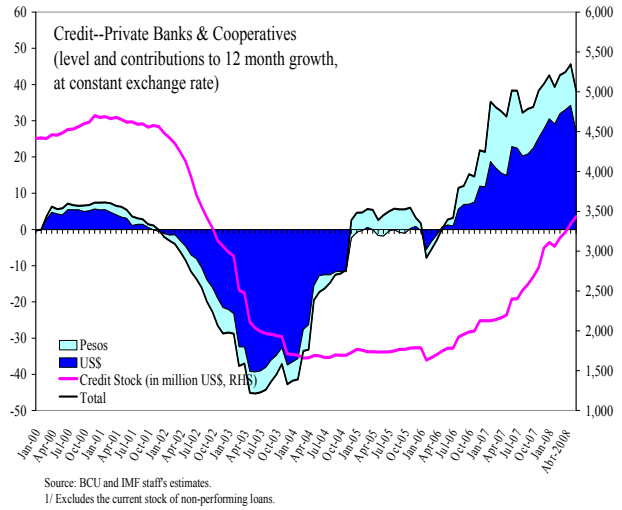


Both private and public banks contributed to the credit expansion with broadly equal increases in their portfolios, although there is evidence of differences in behavior (Figure 7). As mentioned, this difference seems to reflect the segmentation of credit markets, as public banks (notably, BROU) focused on consumer loans and private banks on corporate loans. From December 2006 to June 2008, credit extended by private and public banks—excluding *BHU*—grew by 41 percent and 36 percent, respectively (adjusted for exchange rate changes).

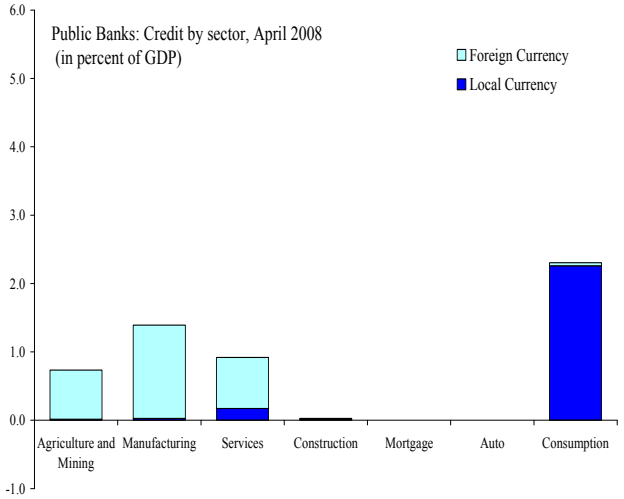
Figure 7. Public versus Private Banks

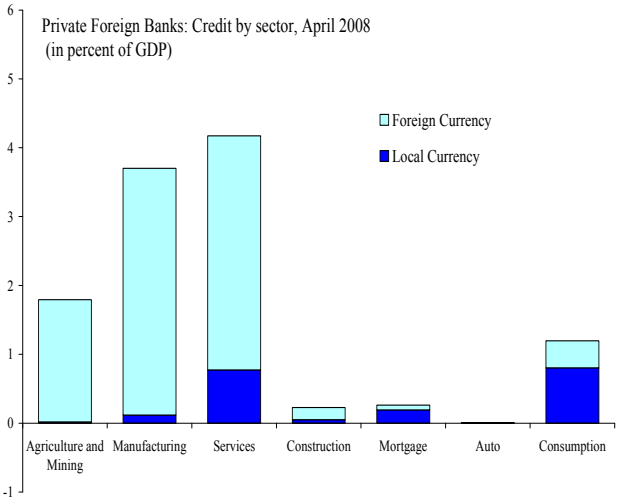


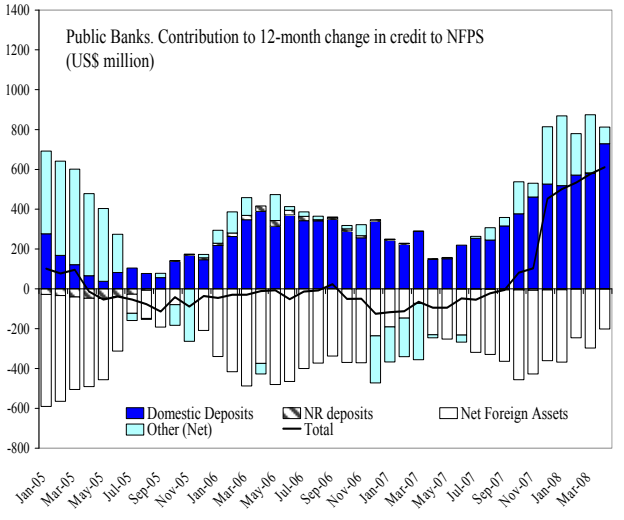
Source: BCU and IMF staff's estimates.
1/ Excludes the current stock of non-performing loans.

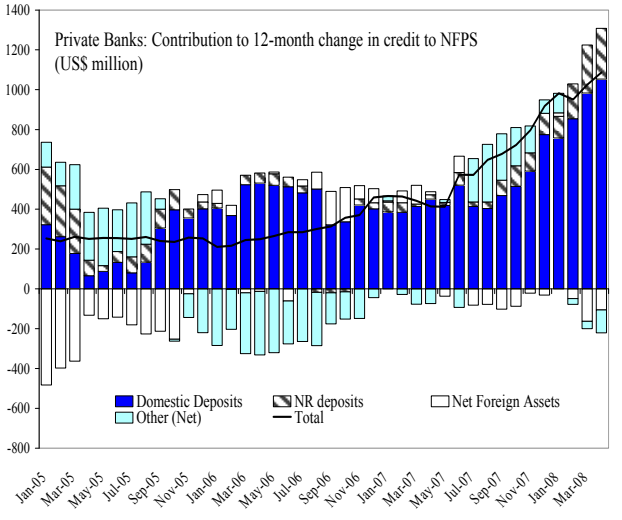


Source: BCU and IMF staff's estimates.
1/ Excludes the current stock of non-performing loans.









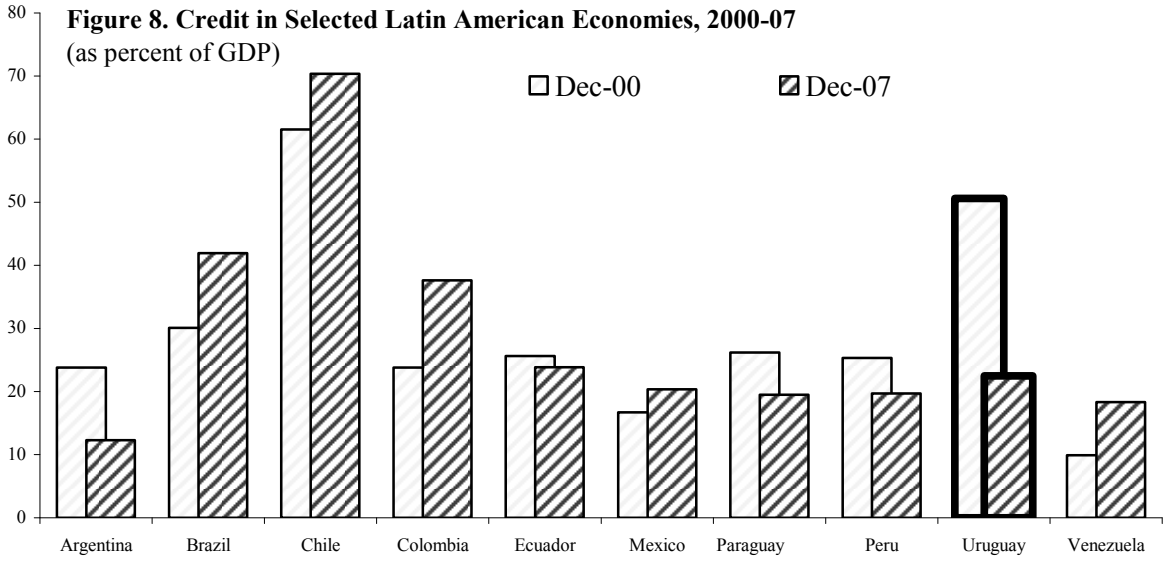
Source: BCU and IMF staff estimates.

In terms of funding, public banks seem to have followed a more cautious approach than private banks, investing a significant share of their newly-available funding in foreign assets. Both public and private banks received the bulk of their financing in the form of domestic deposits, although private banks attracted also some deposits from non-residents.

D. Risks of a Sustained Credit Expansion

Despite the recent episode of credit acceleration, credit to the NFPS—at about US$6.2 billion or 24 percent of GDP—continued to be low, relative to historical (pre-crisis) levels of about 50 percent or GDP and also to the levels observed in neighboring countries with fairly developed financial systems (Figure 8).

Figure 8. Credit in Selected Latin American Economies, 2000-07
(as percent of GDP)



Source: IFS, WEO and IMF staff estimates.

Risks associated with cross-border activities appeared well contained. Unlike in the past, the expansion of credit by banks operating in Uruguay was concentrated solely in the domestic economy, keeping loans to non-residents below 2 percent of total loans in the system as of mid-2008. On the other hand, the pace of growth of non-resident deposits, while accelerating somewhat,[10] remained in line with that of resident deposits, thus keeping the share of non-resident deposits at about 15 percent of total deposits in the system (20 percent in relation to foreign currency deposits). Furthermore, the growth of non-resident deposits was properly backed by further accumulation of (other) net foreign assets.

[10] The increase in non-resident deposits was arguably driven by a "flight to safety", triggered by some turbulence in Argentina in the first quarter of 2008.

Key financial soundness indicators remained robust during the credit expansion as well. In particular, credit to the NFPS stayed below 30 percent of total assets, the 30-day liquidity ratio remained high at about 60 percent of short-term liabilities, non-performing loans (NPLs) fell to about 1 percent of total NFPS credit (although partly on account of expanding loan portfolios), provisions are more than fully covered NPLs, and book capital remained above 10 percent of total assets. However, with the economic and credit cycles reverting, non performing loans could catch up with loan loss provisions.[11]

Table 1. Selected Financial Soundness Indicators

	Dec. 2005	Dec. 2006	June 2007	Dec. 2007	June 2008
Book equity capital % of total assets	8.2	9.4	10.1	10.5	10.6
Return on average assets	0.8	1.0	1.7	1.3	1.0
Liquidity ratio (30 days)*	80.7	110.6	69.1	53.9	62.2
Non-performing loans % of total loans**	5.6	3.7	3.3	1.1	1.1
Specific loan loss reserves % of non-performing loans**	82.8	166.5	155.2	340.1	269.1

Source: Central Bank of Uruguay and IMF staff calculations; mid-year numbers are annualized

* Numerator excludes loans to the non-financial private sector; ** Considers only loans to the non-financial private sector

Accelerating credit seems to have reflected a healthy revival of bank lending. This continued rapid expansion of credit took place in the context of significant changes to Uruguay's regulatory framework that aimed at avoiding a potential relaxation of lending standards.[12] The principal elements of the regulatory framework are examined in the following section.

IV. Prudential Regulation of the Uruguayan Banking Sector

A. Overview of the Current Prudential Framework

The Uruguayan regulatory framework has been continuously updated in response to the 2002-03 banking crisis, to new international standards (e.g. Basel framework) and the pickup in credit growth in 2007-08.

The 2002-03 crisis, which began as a series of deposit runs on two private foreign banks with strong links to Argentina and in the process spilled over to domestic banks, set off an overhaul of the prudential framework (Seelig, 2007). After addressing the fallout from the crisis by way of emergency liquidity assistance to banks, offering official deposit guarantees

[11] Generally, provisions are slow to decrease and the presumed over-provisioning might converge over time unless the quality of the loan portfolios deteriorates.

[12] Empirical evidence shows that there is often a trade-off between rapid financial deepening and financial stability, see Dell'Ariccia (2006).

and reprogramming time deposits as well as finally reorganizing failing banks, the authorities proceeded to gradually overhaul the regulatory framework with a view to addressing specific risks identified during the crisis and converging to new international standards (e.g. Basel II).

Reserve requirements were differentiated by residency of depositors to address risks stemming from the reliance of financing provided by non-residents, the loan classification system was refined to account for specific characteristics of performing loans, and additional liquidity requirements were introduced to bolster the system's buffers against liquidity shocks.[13] Provisioning against performing loans was linked to stress tests that gauge borrowers capacity to service their debt under strong economic shocks. Specific loan loss provisions have come to be well above the regional average (see Table 2), owing to both the cyclically low level of delinquencies and the stringent loan classification rules. In addition, a general "dynamic" (or "statistical") provisioning requirement of up to 3 percent of total loans was introduced in 2001, effectively linking provisioning to credit growth in order to reduce the procyclicality of lending, provisions and bank profits. As a result, overall loan loss allowances (comprising specific and general provisions) have grown to more than five times non-performing loans.

Table 2. Specific Loan Loss Provisions in Percent of Non-Performing Loans
(As of June 2008 or earlier observations)

Argentina	122 percent
Brazil	182 percent
Chile	188 percent
Colombia	120 percent
Mexico	184 percent
Panama	129 percent
Peru	139 percent
Uruguay	**269** percent

A number of additional regulations were put in place, spanning the full range of customary macroprudential and bank-specific measures:

- Macroeconomic policy measures—monetary tightening by raising interest rates (a total of 2¾ percent in 2007) and reserve requirements (to 25/35 percent in June 2008).
- Regulatory measures—more detailed loan classification and provisioning; dynamic provisioning[14]; separate liquidity requirements; rules on maturity and currency mismatches; limits on individual/sectoral creditor and country risk exposures.[15]
- Supervisory/monitoring measures—disclosure requirements on banks' internal risk management practices, periodic stress testing of corporate debtors.
- Market development measures—establishment of a comprehensive credit bureau in 2003 that informs about debtors' risk classification and consolidated loan amounts.
- Administrative measures—actions taken against a number of non-compliant banks (e.g., additional capital requirements, prohibition of additional lending).

[13] Sander et al. (2008).

[14] Introduced by Comunicación No. 2001/149 of September 14, 2001; elaborated in Norma Particular 3.12 (b).

[15] BCU (2008; 2009).

B. Evolution of Prudential Regulation Since the 2002–03 Crisis

In the post-crisis period, the prudential framework was enhanced in several stages. First, in December 2002 an amendment to the banking law was approved that bolstered the previously inadequate legal basis for restructuring or liquidating intervened banks, thereby barring potential interference by stakeholders (e.g. litigation; see Seelig, 2007). Then, after temporarily easing some requirements in the aftermath of the crisis (including on dynamic provisions), in April 2003 the Uruguayan authorities addressed one of the main causes of the crisis by raising reserve requirements on non-resident deposits to 30 percent. In September 2003, a comprehensive credit registry was established to address informational gaps and reduce debtor arbitrage across banks. Utilizing the pooled debtor information, a new regulation ("norma de arrastre")[16] specified that debtors with irrecuperable loans (category 5) anywhere in the system could not classified by other financial institutions better than category 3 ("deudores de riesgo real"), even if the performance of individual loans would have warranted a superior rating. A later modification to this norm established that the quality of consumer and mortgage loans be evaluated on a monthly basis, and not only at the time a loan is made, rolled over or restructured.[17] Moreover, in acknowledging the risk of a sudden withdrawal of deposits by non-residents, the specific limits on credit concentration exposures were adjusted in October 2003, along with a timetable for gradually tightening the limits until end-2007 to mitigate the impact (Banco Central del Uruguay (BCU), 2004, 2005).

Following these immediate post-crisis measures, the prudential framework was further refined in 2005 by introducing forward-looking elements in the classification of credit and market risks. New regulations[18] required that the repayment capacity of large debtors be assessed not only according to their credit history and country risk rating, but also through distinct sensitivity analyses accounting for economic downturns as well as interest rate and currency risk, with a penalizing categorization for debtors failing the test (see section IV.C). Similarly, in complying with the Basel Core Principles for Effective Banking Supervision[19], the banks were required to hold capital against the market risk of both on- and off-balance-sheet positions, comprised of separate contributions for interest rate and currency risk. Also, in the spirit of Basel II, differential risk weights for loans and securities were partly based on ratings, and the risk weight on foreign currency loans was raised to 125 percent.[20] At the

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[16] Comunicación No. 2003/208 issued November 20, 2003.

[17] "Actualización No. 163 a las Normas Contables y Plan de Cuentas para las Empresas de Intermediación Financiera", as established by Comunicación No. 2006/058 issued March 10, 2006.

[18] "Actualización No. 155 & 161 a las Normas Contables y Plan de Cuentas para las Empresas de Intermediación Financiera" as established by Comunicación No. 2005/019 & No. 2005/273 issued January 18, 2005, and December 27, 2005, respectively (effective January 1, 2006, and April 1, 2006, respectively).

[19] See Uruguay's Financial System Stability Assessment (FSSA) of 2006 (IMF, 2006).

[20] See Cayazzo et al. (2006) and Sander et al. (2008). Article 14 of "Recopilación de Normas de Regulación y Control del Sistema Financiero", in Circular No. 1938 issued August 30, 2005 (effective June 30, 2006).

same time, to soften the impact of these additional capital charges, the capital requirement for credit risk was reduced from 10 to 8 percent of risk-weighted assets. Moreover, performing loans (categories 1 and 2) were further differentiated according to the existence of loan guarantees and differing payment delays. Recognizing the low probability of repayment of consumer loans with protracted arrears, the previous past-due period used for classifying such loans as irrecuperable (more than 240 days) was cut in half.[21]

The episode of rapid credit growth during 2006-08 saw a number of additional changes to the regulatory framework to address potentially rising credit risk. In mid-2006, the reporting requirements on debtor information to be submitted on a case-by-case basis were extended to include mortgage borrowers, larger commercial debtors, small-scale consumer loans, and financial sector debtors.[22] In addition to historical data, the information requirement comprised a projection of cash flows (and financial statements), which previously had been required only for borrowers with a system-wide indebtedness of 5 percent or more of banks' basic capital requirement. Also, the classification of consumer loans was tightened in that loans with share of debt service amounting to 30 percent of total income of the borrower (15 percent for foreign-currency loans) could not be better than category 3. Regarding commercial loans, specific criteria for the evaluation of the repayment capacity of firms were introduced, focusing on (i) the sufficiency of cash flows from operations to meet debt service obligations; (ii) the capacity to withstand a strong depreciation of the Uruguayan peso; and (iii) for highly-indebted borrowers, an evaluation based on stress tests assuming a set of macroeconomic shocks as well as sector- and firm-level developments.[23]

In addressing the risk of a drop in liquidity after the pickup in credit growth, the authorities introduced a new liquidity requirement effective in May 2007 (see section IV.D).[24] In January 2008, a change in classification requirements allowed using expert judgment in assessing smaller commercial borrowers. Finally, coinciding with recommendations made in the 2006 Financial System Stability Assessment, in April 2008 regulations on risk management systems in banks were released, notably in the areas of credit, market, liquidity, operational, country, compliance, reputational, and technology risk, as well as corporate governance.[25] Table 3 summarizes the main changes to the regulatory framework since the 2002-03 crisis.

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[21] In the case of commercial loans, the respective past-due period was reduced to 181 days.

[22] Circular No. 1952 and Comunicación No. 2006/151 issued June 15, 2006.

[23] "Actualización No. 165 a las Normas Contables y Plan de Cuentas para las Empresas de Intermediación Financiera", as established by Comunicación No. 2006/152 issued June 15, 2006.

[24] Circular No. 1968 issued March 8, 2007. Eligible liquid assets against *local currency* liabilities are: peso cash; deposits at the BCU with a maturity of less than 30 days; certain BCU securities. Eligible liquid assets against *foreign currency* liabilities are: peso and foreign currency cash; deposits at the BCU and at investment-grade foreign banks, both with a maturity of less than 30 days; foreign public securities with investment grade.

[25] Circular No. 1987 issued April 3, 2008.

Table 3. Key Regulatory Norms

Type of regulation	Article within R.N.R.C.S.F.[26]	Date issued (effective)	Description of regulatory measure
Capital requirements for credit/market risks	Article 14	August 2005 (June 2006)	Differentiated risk weights, including on foreign currency loans, partly rating-based. Capital charges for market risks.
Loan classification	Article 25	February (April) 2006	Definition of the current seven-tier loan classification system that makes certain distinctions between commercial, consumer, and mortgage loans.
Risk management systems in banks	Article 35	February (July) 2008	Requires an integrated risk management system at banks, that assesses credit, market, liquidity, operational, country, compliance, reputational and AML-CFT risks.
Liquidity requirements	Articles 40-47	March (May) 2007	Separation of liquidity requirements from reserve requirements. Banks to hold liquid assets against short-term liabilities, with the rates linked to the maturity of the latter.
Credit risk exposure	Article 52	1991; updated August 2005 (June 2006)	Non-performing loans net of provisions must not exceed 100 percent of minimum required regulatory capital.
Foreign currency exposure	Article 55	1991; updated November (December) 2003	Net open foreign currency position must not exceed 150 percent of minimum required regulatory capital.
Maturity mismatch exposure	Article 57	1999; updated November (December) 2008	Net open position of balance sheet items with maturities of more than 3 years must not exceed 100 percent of minimum required regulatory capital.
Credit concentration exposure	Articles 58, 59	1975; updated October 2003 (Jan. 2004); last updated June 2008	Credit exposure to a single borrower must not exceed 15 percent of minimum required regulatory capital (25 percent for debtors with credit rating of BBB+ or better; 35 percent for debtors additionally presenting specific guarantees).
	Articles 60-64	October 2003 (Jan. 2004); last updated June 2008	Limits on credit exposures to the financial sector; domestic/foreign public debtors; related companies.
Country risk exposure	Article 68	October 2003 (Jan. 2004); last updated October 2007	Total exposure to countries with credit rating below BBB-; between BBB- and BBB; between BBB+ and AAA+; above AAA+ must not exceed 100; 200; 400; 1000 percent of required regulatory capital, respectively.
Overall risk exposure	Article 70	1989; last updated November 2007	Total of individual risk exposures must not exceed 800 percent minimum required regulatory capital.
Specific loan loss provisioning/	Normas Particulares [27] 3.8/ 3.12	January 2005 (Jan. 2006)/	Specific loan loss provisions be based on objective criteria (e.g. days past-due) as well as a forward-looking assessment of debtors' repayment capacity.
Dynamic provisioning		September 2001	Dynamic provisions consist of monthly provisions adding up to about 1 p.a. of total loans (net of specific provisions), until the stock of such provisions reaches 3 percent of total loans.

[26] "Recopilación de Normas de Regulación y Control del Sistema Financiero"; BCU (2009).

[27] "Normas Contables y Plan de Cuentas para las Empresas de Intermediación Financiera".

The subsequent sections examine the details of prudential regulation in the areas of loan classification and provisioning (including dynamic provisions), liquidity holdings, and limits to credit risk and other risk exposures.

C. Loan Classification and Provisioning System

A prudent loan classification system is vital to presenting an appropriate picture of loan quality and thus safeguards that provisions and capital buffers are commensurate with credit risks. Such a system categorizes loans as to their probability of distress or default (typically ranging from viable to irrecuperable loans, or grade 1 to 5) and prescribes the specific loan loss provision to be held against each loan category.

The Uruguayan seven-tier loan classification system (BCU, 2008) differs from the typical loan classification system. Specifically, it includes two upper categories that are split in two to differentiate between loans with and without guarantees (category 1A for fully-guaranteed loans, and 1C for other performing loans[28]) and days past-due (category 2A and 2B to differentiate by days-past due for commercial credit). As is common, there is also a distinction made between type of loans and debtors regarding the past-due periods (120, 180 and 240 days for consumer, commercial and mortgage loans, respectively; see Table 4). By classifying consumer loans that are 90 days past-due as non-performing (category 3), the Uruguayan system is in line with the typical past-due norm applied in many countries (Cortavarria et al., 2000; Laurin and Majnoni, 2003), including in Latin America. Regulations allow banks to deduct eligible collateral from loans in determining specific provisions, which in accounting terms may lead to less-than-full provisioning of irrecuperable loans.

In addition to these objective ex-post criteria, the Uruguayan loan classification system features forward-looking elements. Since 2006, the repayment capacity of commercial debtors is assessed against their economic and financial situation, the riskiness of their business as well as possible exchange rate and interest rate mismatches. The debtors' payment history and, in the case of foreign borrowers, country risk are also considered (see Table 4). Large commercial debtors whose loans with a bank or the banking system exceed 10 or 15 percent of loans, respectively, are subjected to more comprehensive adverse scenarios that evaluate the impact of a strong deterioration in key macroeconomic variables on the repayment capacity (BCU, 2008).[29] In case the debtor fails any of these tests, the loan

[28] Category 1B is only used to classify loans to non-resident financial sector debtors with a very strong repayment capacity (Norma Particular 3.8, paragraph 4.2.1.).

[29] Variables are: real depreciation of 20 percent (adverse scenario) and 60 percent (strongly adverse scenario), negative GDP growth of 3 and 6 percent as well as an increase in the 6-month LIBOR rate of 200 and 500 basis points, respectively. In addition, an indicator measuring indirect currency risk stemming from unhedged debtors in foreign currency is used (Sander et al., 2008).

is downgraded to a category lower than prescribed by the past-due period and may even be classified as non-performing (category 3).[30] For consumer loans, the classification is based solely on the past-due period. However, if the monthly installment of local (foreign) currency loans exceeds 30 (15) percent of monthly family income, the loan cannot be classified better than category 3. The methodology for assessing the repayment capacity of commercial borrowers is in line with international practices, as, for example, applied in neighboring countries.

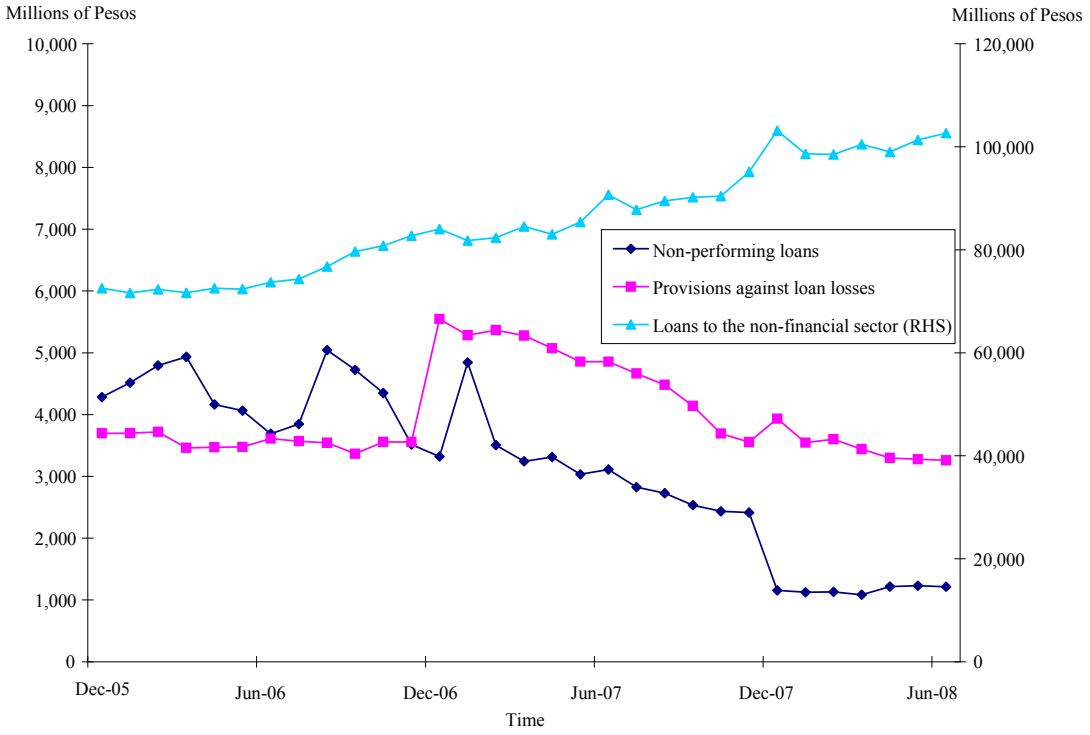
Table 4. Description of Categories Used in the Loan Classification System

Category	Days past-due less than:	Provisioning rate	Comments
1A	Corporate loans with full guarantee: 60 days	0 percent	No risk to bank because loan is fully backed by deposit of equal amount.
1C	Other performing loans without guarantee: 10 days	0.5 to under 3 percent	Commercial borrowers must also pass strongly adverse stress test (60 percent peso depreciation). Non-resident borrowers with country rating of BBB- or better.
2A	Commercial loans: 30 days; Consumer and mortgage loans: 30 days	3 to under 7 percent	Commercial borrowers must also pass adverse stress test (20 percent peso depreciation). Non-resident borrowers with country rating of BB- or better.
2B	Commercial loans: 60 days Consumer and mortgage loans: 30 days	7 to under 20 percent	Commercial borrowers must also pass basic stress test using expected changes in variables. Non-resident borrowers with country rating of B- or better.
3	Commercial loans: 120 days Consumer loans: 90 days Mortgage loans: 180 days	20 to under 50 percent	Commercial borrowers who fail all three stress test scenarios. Non-resident borrowers with country rating of CCC- or better.
4	Commercial loans: 180 days Consumer loans: 120 days Mortgage loans: 240 days	50 to under 100 percent	Non-resident borrowers whose country is rated CC or worse.
5	Commercial loans: 180 days to 2 years Consumer loans: 120 days to 2 years Mortgage loans: 240 days to 2 years	100 percent	

Loans past-due for more than two years must be written off. This norm helps to explain the sudden drop in non-performing loans at year-end 2007, which can be inferred from Figure 9 along with recent developments in loans to the non-financial sector and specific loan loss provisions.

[30] Despite the relevant International Accounting Standard (IAS 39) that contemplates only incurred losses, such forward-looking (general) provisioning is possible even if individual losses are not yet individually identified, and it is also in the spirit of Basel II that stipulates that the difference between total expected losses and total provisions be reflected in regulatory capital (Viñals, 2004; BCBS, 2006).

Figure 9. Credit to the Non-financial Sector, Non-performing Loans and Loan Loss Provisions



To put the stringency of loan provisioning in Uruguay in perspective, Table 5 shows a comparison with other Latin American provisioning regimes. It illustrates that the rates for specific loan loss provisions are relatively high in the case of viable loans (categories 1 and 2) and about average for non-performing loans (categories 3 to 5).

Table 5. Provisioning Rates for Loan Categories in Latin American Countries

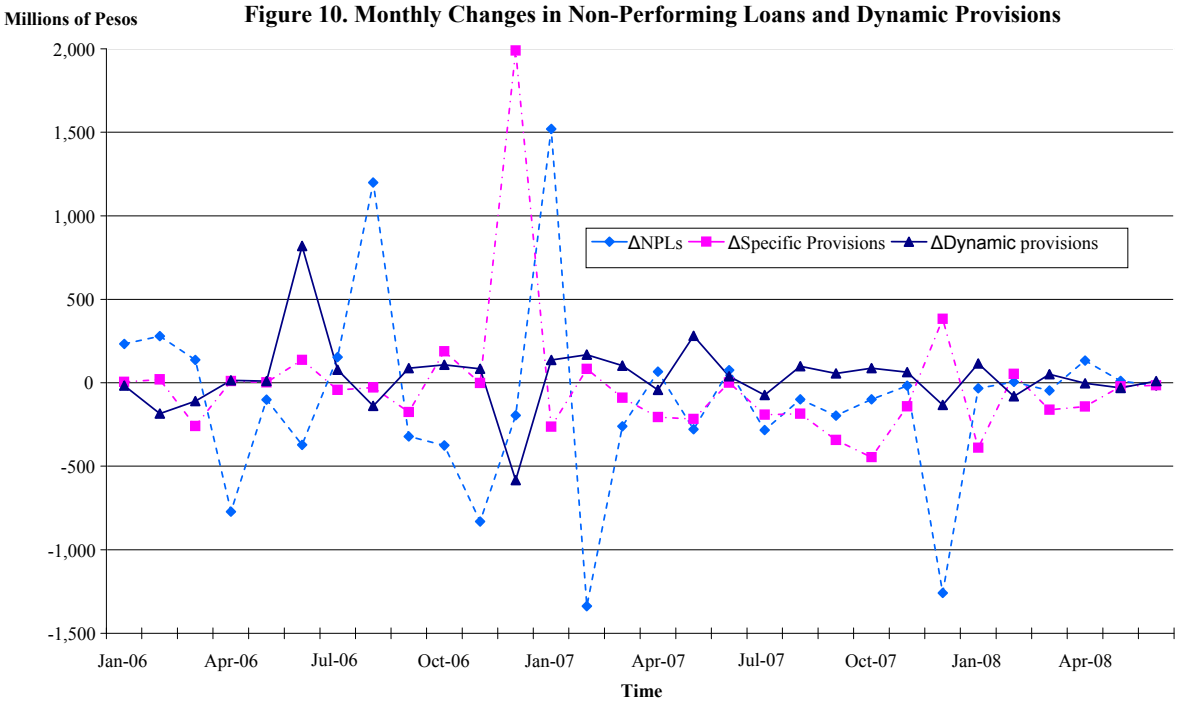
Tier/ Country	**1 standard**	**2 special mention**	**3 substandard**	**4 doubtful**	**5 irrecuperable**
Argentina*	1	3/12	12/25	25/50	50/100
Brazil**	0	0.5/1/3	10	30/50/70	100
Chile	0	10	20	60	100
Colombia	0	1	20	50	100
Costa Rica	0.5-2	5-10	25-50	75	100
Ecuador	1	5	20	50	100
El Salvador	0-1	5	15-25	50-75	100
Guatemala	0	5	20	50	100
Honduras	0.25-2	2	10-15	40-85	100
Mexico	0	1	20	60	100
Nicaragua	1	5	20	50	100
Panama	0	2	15	50	100
Paraguay	0	1	20	50	100
Peru*	1	1.25/5	6.25/25	15/60	30/100
Uruguay	**0-0.5**	**3-7**	**20**	**50**	**100**
Venezuela	0	3	15	60	95

Sources: Country authorities (as of mid-2008); * With/without loan guarantees; ** Approximation of nine-tier scale.

In addition to specific provisions as well as voluntary ones and reserves for off-balance items, the Uruguayan provisioning system features dynamic provisions. Different from general provisions elsewhere (Laurin and Majnoni, 2003), this type of provision is called dynamic because the monthly contribution to this reserve rises (falls) if specific provisions and hence actual loan losses are lower (higher) than expected losses which are based on long-run historic default rates. Fashioned after the Spanish model, Uruguay pioneered dynamic provisioning in Latin America in 2001, during a period of rapid credit growth.[31] Banks provision on average 1 percent of loans a year (net of specific provisions and broken into monthly payments) until the stock of dynamic provisions reaches 3 percent of total loans. By mid-2008, 4 out of 14 banks had reached this mark, with another four above 2.5 percent (as dynamic provisions are made with a lag, the share varies with credit growth).

As Mann and Michael (2002) and Pérez et al. (2006) show, building general provisions in good times to use them when bad loans rise has a countercyclical, income-smoothing effect. In Spain, the buffer of dynamic provisions has arguably mitigated the impact of the current crisis on banks (see Banco de España, 2008). In Uruguay, the effect remains to be seen, as doubtful loans and provisions have generally trended down. Yet, when specific provisions rose in December 2006 one month ahead of a spike in NPLs, this pickup was cushioned by a significant drop in dynamic provisions (Figure 10), supporting the countercyclical effect.

Figure 10. Monthly Changes in Non-Performing Loans and Dynamic Provisions



[31] Dynamic provisions were later adopted by Colombia in 2007 and Bolivia and Peru in 2008 (IMF, 2009b). For the Spanish system launched in 2000, see Fernández de Lis et al. (2000), and Jiménez and Saurina (2005).

Uruguay's loan classification and provisioning system broadly conforms to best international practices, e.g. the principles of "sound credit risk assessment and valuation for loans" of the Basel Committee on Banking Supervision (BCBS, 2006). Banks are required to have a reliable loan classification that considers all loan categories, is model-based and forward-looking in assessing the debtor's paying capacity, and is generally updated on a monthly basis (in line with principle 2 of this set of BCBS recommendations). The loan loss methodology of banks examines the entire loan portfolio, assesses viable loans with similar risk characteristics collectively, allows for expert judgment, and considers collateral values. However, it does not require the banks or the Superintendency of Financial Services (SSF) to validate credit risk assessments by migration analysis or back-testing (principles 3 to 5). Loan loss provisions are made in a timely manner, and do take into account debtor characteristics (company and sector information) in addition to the past-due period (principle 6). Regarding supervisory practices, the SSF periodically and comprehensively evaluates the effectiveness of banks' credit risk policies, including risk management systems, requires banks to account for cash flow projections in categorizing borrowers, and ensures the timely recognition of irrecuperable loans through provisions and mandatory write-offs (principles 8 and 9). The high quality of the prudential framework is confirmed by the largely positive assessment of Uruguay's compliance with the *Basel Core Principles for Effective Banking Supervision* that was carried in tandem with the 2006 Financial System Stability Assessment.

Establishing ample cushions of loan loss reserves, including dynamic provisions, is useful in dealing with concerns about financial stability. However, this also entails a burden on banks' profitability, which, on average, has been somewhat subdued recently (IMF, 2009a). The fact that as of mid-2008 overall provisions were about five times non-performing loans raises questions of whether provisions are in line with actual default rates and whether the methodology of dynamic provisioning is sufficiently refined. To shed light on the first question, further work could compare the actual provisioning rates with the historic default rates by analyzing (unpublished) transition matrices showing the share of loans that eventually defaulted during a given time period. On the second question, the Uruguayan system of dynamic provisions does recognize divergent risk profiles of loan portfolios by assigning different provisioning rates to five loan categories of homogeneous risks (or "risk buckets")[32]. However, the system forgoes the distinction by loan-to-value ratios for mortgage loans that the Spanish system makes. Also, unlike the Spanish system it does not incorporate directly the deviation of current specific loan provisions from the their average level across the cycle.[33] Finally, dynamic provisions are not counted towards tier-II capital.

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[32] These five buckets are: (1) loans to banks with prime guarantees ("type A"; provision of 0.1 percent); (2) loans to banks with other guarantees ("type B"; 0.5 percent); (3) other loans (1.1 percent); (4) consumer loans (1.4 percent); (5) credit card loans and overdrafts (1.8 percent). For Spain's six-bucket system see IASB (2009).

[33] This aspect is important because simulations (Jiménez and Saurina, 2006) have shown that the risk of loan default is highest in periods of strong credit growth and that requiring banks to make higher provisions concurrently introduces some variations in loan loss provisions that conform better with the actual default risk.

D. Liquidity Requirements

In March 2007, Uruguay separated the prudential liquidity regime from reserve requirements to do away with potential conflicts of interest within the BCU (the SSF being a part of BCU). Liquidity requirements and reserve requirements are not additive: When reserve requirements were increased to 25/35 percent effective June 2008, the minimum liquidity requirement was no longer binding, given that the highest required rate (on non-resident foreign currency deposits) was only 30 percent. To comply with liquidity requirements, banks must hold 17 percent in cash on peso deposits and 25 (30) percent on foreign-currency deposits held by residents (non-residents). The liquidity requirement can be met by holding reserves at the BCU as well as by posting interbank loans and treasury bills, which are not eligible towards the reserve requirement. As Table 6 shows, Uruguay is one of the few countries in Latin America that have a specific liquidity regime based on different bands of deposit maturities.

Table 6. Prudential Regulation of Bank Liquidity in Latin American Countries

Argentina*	Up to 29 days: 14% (35%)	30 to 59 days: 7% (20%)	60 to 89 days: 11% (28%)	90 to 179 days: 2% (10%)	180 to 365 days: 0% (6%)	Over 365 days: 0%
Brazil	Reserve requirements: 42% on sight deposits; 20% on savings deposits; 15% on time deposits. Marginal requirements on all 3 types of deposits between 5 and 10%.					
Chile	Asset-liability maturity mismatch for maturities up to 30 (90 days) must not be greater than 100% (200%) of core capital.					
Colombia	Liquidity requirements: risk indicator for 7-day liquidity must comply with specific norm.					
Costa Rica	Reserve requirements: 15% on deposits and other debt obligations.					
Ecuador	Liquidity fund: 1% of deposits. Reserve requirements: 4 % on deposits.					
El Salvador	Liquidity requirements: 25% (an additional 3% of deposits to be held in liquid assets). Reserve requirements: 22% on eligible liabilities (individual rates vary by type of liability).					
Guatemala	Reserve requirements: 14.6% on deposits.					
Honduras	Liquidity requirements: 38% of foreign-currency deposits to be held in liquid assets. Reserve requirements: 16% on deposits.					
Mexico	Reserve requirements: banks have to maintain a zero average/accumulation of daily balances with the central bank, over a 28-day period.					
Nicaragua	Asset-liability maturity mismatch for maturities up to 30 (90 days) must not be greater than 100% (200%) of core capital.					
Panama	Liquidity requirements: 30% of deposits to be held in liquid assets.					
Paraguay	Reserve requirements: 17% (7%) on deposits of up to 360 (540) days.					
Peru	Liquidity requirements: 20% on local currency deposits, 25% on foreign currency deposits Reserve requirements: 6.5% on liabilities (o/w 2% in cash); marginal reserve requirement of 25 (30)% on local (foreign) currency deposits, 35% on deposits by non-resident.					
Uruguay**	**Up to 29 days: 17% (25/30%)**	**30 to 89 days: 9% (25/30%)**	**90 to 179 days: 6% (25/30%)**	**180 to 360 days: 4% (19/30%)**	**Over 360 days: 0% (19/30%)**	
	Reserve requirements: 25% on local currency deposits, 35% on foreign currency deposits.					
Venezuela	Reserve requirements: 15% on deposits (30% on certain money market instruments).					

Sources: country authorities; data generally as of mid-2008; * In parentheses: liquidity requirement on foreign-currency deposits; ** In parentheses: liquidity requirement on foreign-currency deposits of residents/non-residents.

Table 6 illustrates that Uruguay's liquidity requirements on foreign currency deposits are generally higher than in most other countries of the region with unique liquidity norms, whereas requirements on local currency deposits are somewhat lower than in some peer countries.[34]

Notwithstanding the elaborate quantitative liquidity requirements, the prudential liquidity framework could be better aligned with the *Principles for Sound Liquidity Risk Management and Supervision* recently published by the Basel Committee on Banking Supervision (BCBS, 2008). These principles advise bank supervisors to adopt a liquidity framework that allows for thorough assessments of banks' liquidity risk management practices and the adequacy of their liquidity, with particular scrutiny of banks posing the largest risk to the financial system (principle 14 of the BCBS liquidity recommendations). In this light, the SSF would have to step up the monitoring of bank liquidity by stress-testing banks' net liquidity positions on a regular basis (and/or requiring the banks to do so). On the basis of such tests and other relevant market information, the SSF could set up an "early warning system" that would inform of liquidity pressures building at particular banks or system-wide (principle 15). For example, in dealing with potentially volatile deposits, including by non-residents (about 15 percent of deposits), the SSF may formally subject banks failing to meet the liquidity requirement not only to preannounced fines but also to a mandated swift reduction in the funding gap in certain time bands or deposit categories as well as the requirement to improve internal liquidity management and contingency planning (principle 16). In addition, benchmarking bank liquidity against a floor of liquid assets disposable for lending would complement the liquidity analysis in identifying banks likely to encounter liquidity shortages, should credit growth eventually rebound.

E. Other Issues

The SSF not only enforces the regulation on credit risk exposures but also monitors credit developments using an index that relates bank credit to household income. This indicator of household's repayment capacity is constructed as the relation between credit of public and private banks as well as non-bank lending agencies to average annual household income multiplied by the estimated number of households. At the end of 2008, the index reportedly stood at 25 percent (10 percent when excluding BHU), which means that the debt burden of the average household amounted to about 3 months of income (1 month when only considering short-term debt). Importantly, according to the SSF, the index remained fairly stable during the 2006-08 period of credit expansion, and initially even fell as the credit expansion was first directed to the export sector and not households. Naturally, though, the

[34] Notice though that in El Salvador and Panama—countries with separate liquidity norms—the U.S. dollar is the legal tender and thus considered the local currency.

index does not cover the debt burden of the corporate sector that received the bulk of new credit during the recent credit expansion.

In determining banks' minimum required regulatory capital, the SSF runs stress tests on a quarterly basis, assuming a specific deterioration in key variables that represent the main intermediation risks, notably exchange rate, interest rate and credit risk (for the latter using a typical value-at-risk approach). However, the econometric framework used for determining the capital charges for credit risk only takes into account variations in economic growth and the exchange rate but not firm-specific and sectoral developments, and the parameters historically did not change much over time.[35] A set of varied stress tests run in August 2008 showed that the capital adequacy ratios of all banks would have remained above required levels under all but extreme scenarios. Liquidity risk was also assessed by shocking the marketability of short-term assets in addition to assuming deposit outflows. It was found that while liquidity levels varied across banks, the system as a whole disposed of ample liquidity to withstand sizable shocks.

An important component of the prudential framework is official dissemination of bank-specific information which informs the general public and specifically bank clients of the soundness of individual banks. In its financial stability report, which, notably, is published on a quarterly basis, the BCU informs about each bank's compliance with minimum required capital, its structure of assets and liabilities, the return on assets and equity, and since early 2009 also on the results of the quarterly stress tests. It also mentions the regulatory changes adopted in the preceding period. This said, the methodology used to arrive at the stock of banks' specific loan loss provisions and general provisions is not easy to understand, which complicates the calculation of one of the key financial soundness indicators.

V. CONCLUSIONS

This paper has studied how Uruguay's prudential framework was gradually developed and refined to address shortcomings identified during the 2002-03 crisis and to deal with cyclical pressures resulting in an acceleration of credit expansion. The gradual but persistent reforms have brought financial regulation and supervision generally up to international best practices, while also embracing innovative elements such as dynamic provisions and explicit liquidity requirements.

As a result, Uruguay now has a detailed, comprehensive and forward-looking system of loan classification and provisioning in place that scores high in rigor compared with other countries in the region. The prudential framework has likely helped contain the credit risk associated with high credit growth during 2006-08 through stringent loan classification and ample provisioning that are based on forward-looking criteria, explicit limits on individual

[35] Reportedly, the SSF is currently in the process of refining its credit risk model.

and sectoral credit risk exposures, and a liquidity system that is among the most elaborate in the region.

Notwithstanding the significant progress in financial sector regulation, the current financial crisis has shown that there remains scope for improvement in a number of regulatory and supervisory matters. In the case of Uruguay, these include improvements in back-testing the adequacy of banks' loan loss provisions; monitoring and stress-testing bank liquidity as part of the financial early warning system; and further advances in the econometric modeling of credit risk for determining capital charges.

In the interest of comprehensiveness, this case study of the evolution of a prudential framework has focused on a basic analysis of the most salient regulatory features. Further research should pick up on the critical aspects identified in the paper and examine in more detail the economics of the specific regulations such as the adequacy of the loan classification and dynamic provisioning rules and, thus, the possible over-provisioning for loan losses.

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