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# The bigness of smallness: The financial crisis, its contagion mechanisms and its effects in Latin America

*Daniel Titelman, Esteban Pérez Caldentey, Ramón Pineda*

This paper has two purposes. First, it seeks to explain the reason why a relatively small shock (in the subprime market in the United States) had a systemic effect on the world economy. It is argued that this responds to the combination of off balance sheet funding and pro-cyclical leverage management. Second, it analyses the transmission mechanisms and the possible effects of the crisis on Latin American economies. Past crises had generalized, deep and enduring effects across the region, and restricted access to external finance and the disruption of international trade turned out to be their main channels transmission. In spite of specificities, the current episode and its manifestations are not an exception to the pattern of previous crises. The final outcome will depend on the type of recovery that takes place in the developed world and on the effectiveness of the counter-cyclical policies applied in Latin America.

Daniel Titelman  
 Chief, Development Study Section

✉ [daniel.titelman@cepal.org](mailto:daniel.titelman@cepal.org)

Esteban Pérez Caldentey  
 Economic Affairs Officer,  
 Development Study Section

✉ [esteban.perez@cepal.org](mailto:esteban.perez@cepal.org)

Ramón Pineda  
 Economic Affairs Officer,  
 Development Study Section

✉ [ramon.pineda@cepal.org](mailto:ramon.pineda@cepal.org)

# I

## Introduction

The current international financial crisis, which is considered to be the most severe since the Great Depression, is set in the context of unprecedented global imbalances and high levels of international liquidity. The build up of liquidity was channelled through the banking system to the real estate sector, including to borrowers with a high risk profile, significantly bidding up initially house prices and eventually those of other assets as well. This was facilitated and enhanced by a process of financial innovation in the context of unregulated markets.

The current international crisis began in a relatively small segment of the real estate market of the United States, the subprime market, which represented roughly 4% of all United States financial assets. However, the crisis did not remain focalized within that submarket and the consequent contagion effects, felt in the real and financial sectors of the developed world, have by far outstripped the initial losses. Moreover, the effects have also spread to emerging market regions of the world, including Latin America.

The purpose of this paper is twofold. First, it seeks to shed light on one of the most fundamental and enduring questions regarding the crisis, namely: how can a shock to such a small segment of the real estate market in the United States trigger such a worldwide debacle?<sup>1</sup> In other words, how can something so small turn into something so big? Second, bearing in mind the systemic character of the crisis, the paper identifies the possible effects of the crisis on Latin American economies and transmission mechanisms involved. The paper is structured accordingly in two parts.

The first part argues that the disproportion between the relatively small size of the sector that triggered the crisis (the subprime sector) and the importance of the magnitude of its effects on asset values and the systemic worldwide contagion is rooted in the combination of off balance sheet funding and

pro-cyclical leverage management. Off balance sheet funding set the stage for the crisis, and pro-cyclical leverage management acted as the amplifier mechanism. This combination led eventually to a contagion process characterized by generalized and cumulative asset price deflation, which led to significant contractions in financial institutions' balance sheets. This in turn reduced financial institutions' lending capacity and paved the way for a worldwide credit crunch.

The second part provides an analysis of the transmission mechanisms of the current crisis and its effects on Latin American economies using as a benchmark past crises, including the debt crisis (1980-1983), the United States savings and loan crisis (1987-91), the Mexican crisis (1994-1995), the Asian-Russian crisis (1997-1999) and the Argentine crisis (2001-2002).<sup>2</sup>

The analysis indicates that, in general, international financial crises have deep and enduring negative effects on the region's economies. Also, the evidence presented shows that the main transmission channels, albeit not always acting jointly, include restricted access to external finance and the contraction of international trade flows. Both transmission channels are present in the current episode even though the initial effects of the crisis have not been as severe as in past episodes. Finally, regardless of countries' initial conditions, the negative economic results and the restricted access to external finance has affected a large number of countries across the region. In short, the available empirical evidence suggests that in the case of Latin

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<sup>1</sup> Blanchard (2008) poses a similar question: 'how can such a small trigger have such enormous effects', which is the basic question surrounding the current crisis. For analyses along similar lines, see Eichengreen (2009) and Greenlaw et. al. (2008).

<sup>2</sup> Eichengreen, Rose and Wyplosz (1996), De Gregorio and Valdés (1999), Calvo and Mendoza (2000), Forbes and Rigobon (2001), Rigobon (2001), Edwards (1999) and Kaminsky, Reinhart and Vegh (2002) have identified several critical moments in the international financial markets that could be considered as systemic crisis. These episodes include the debt crisis in early 1980s, the Mexican crisis of 1994, the Asian crisis of 1997, the Russian Crisis of 1998, the Brazilian crisis of 1999, the long term capital management crisis of 2000, the Argentine crisis of 2001 and the Turkish crisis of 2002. Other examples in the literature on financial crises, such as Levean and Valencia (2008) and Reinhart and Rogoff (2008a), have identified episodes such as the savings and loan crisis in the mid-1980s, and the Scandinavian and the Japanese crises of the early 1990s as part of the "big five" financial crises in terms of financial cost.

America, the current episode and its manifestations are not an exception to the patterns of previous crises and that, as suggested by Pineda, Pérez-Caldentey and Titelman (2009), the current episode might well turn out to be a case of “old wine in new goatskins.”

## II

### The build-up and propagation of the global financial crisis

#### 1. The macroeconomic setting for the financial crisis

The current crisis took place in a context of global imbalances: an external account deficit in the United States, which was by far the largest and most persistent in the country’s economic history, that was mirrored by significant current account surpluses in the economies of Asia (in particular China) and to a lesser extent in Middle Eastern countries.

The increased demand for dollars which translated initially into an appreciation of the dollar and the concomitant build-up in liquidity allowed the Federal Reserve Bank to undertake an expansionary monetary policy while keeping inflation at bay. The expansionary policy lasted until 2005 as shown by the decline in the Federal Funds Rate from 6.1% to 1.0% between January 2000 and May 2004. Monetary policy became less expansive thereafter. Increased liquidity was also present in world financial markets as the evolution of the LIBOR rate mirrored the movement in the Federal Fund rate.<sup>3</sup>

The build-up of liquidity set the stage for increased lending by the financial system to the residential real estate sector including to high credit risk borrowers (the subprime market) leading to a rapid rise in house prices and the formation of bubble in the housing market.<sup>4</sup> The empirical evidence shows that in the five

The strength of the expected effects will be nonetheless shaped by the duration and intensity of the crisis in the developed economies and by the effectiveness of the counter-cyclical policies announced by Latin American governments.

years prior to the unfolding of the crisis the ratio of private sector credit to GDP rose from 169% to 209%. Also, the increase in liquidity was accompanied by an accumulated increase in real estate properties reaching 184%.

The increase in loans to high credit risk borrowers was facilitated and enhanced by a process of deregulation and financial innovation in the context of unregulated markets which permitted excessive risk-taking as a result of changes in the incentive structure and the relaxation and virtual circumvention of existing financial regulations and prudential provisions.<sup>5</sup>

#### 2. How could such a small trigger cause such a worldwide debacle?

The housing price bubble eventually stopped expanding when real estate prices suffered a significant decline between 2006 and 2008 (30%). The ensuing initial

billion. A decade ago, five percent of mortgage loan originations were subprime; by 2005 the figure had jumped to approximately 20 percent. Currently, there are about US\$1.3 trillion in outstanding subprime loans, with over US\$ 600 billion in new subprime loans originating in 2006.

<sup>5</sup> The possibilities of extending loans and borrowing were expanded for financial intermediaries by several means. These included the relaxation of geographical and activity limitations on bank holding companies and new regulatory interpretations of existing law. They also comprised the expansion of activities of depository institutions to allow them to act like commercial banks, the repeal of the separation of commercial and investment banking imposed in the Banking Act of 1933, and the creation of new entities, such as private equity firms and hedge funds, within the financial sector. One important example is the Commodity Futures Modernization Act (2000) which preceded the 2007 crisis. The Act established a series of provisions affecting the regulatory and supervisory roles of the Commodity Futures Trading Commission and the Securities and Exchange Commission. At a practical level, however, the act shielded the market for derivatives from federal regulation and thus inevitably led to riskier financial practices.

<sup>3</sup> These macroeconomic and financial conditions are not exclusive to the current situation; they were also present in other financial crises, including the Latin American debt crisis, the savings and loan crisis, the Nordic countries crisis, the Japanese crisis, the Asian crisis and the dot-com crisis, as shown in Table 11 in the Appendix.

<sup>4</sup> The subprime market gained importance as of the mid-1990s and especially from 2003 onwards. Data available for 2001-2006 shows that new subprime loans increased from US\$ 120 billion to US\$ 600

defaults and losses were mainly limited to subprime mortgage loans and securities. The subprime mortgage sector is a small component of the residential sector, consisting mostly of lower-income lenders. These represented roughly 20% of all mortgage loans in 2007 and 4% of all United States assets. The losses on subprime loans and securities amounted to only roughly US\$ 400 billion.<sup>6</sup>

However, the consequent effects of the crisis have by far outstripped the initial losses. Indeed it is estimated that the cumulative declines of United States real estate wealth and of stock market capitalization values one year after the subprime crisis reached roughly US\$ 1 trillion and US\$ 7 trillion dollars, respectively.

In addition, far from remaining focalized within the subprime sector of the United States, the crisis has spread widely to affect some of the most important financial institutions in the United States and in other developed countries. Moreover, the contagion effects have also reached the emerging market regions of the world. Currently it is estimated that the cumulative decline of world GDP, relative to its trend, surpasses US\$ 3 trillion.<sup>7</sup>

The disproportion between the relatively small size of the sector which triggered the crisis (the subprime sector) and the importance of the magnitude of its effects on asset values and stock market capitalization and the systemic worldwide contagion beg an answer to the question posed in the title of this section.<sup>8</sup>

The answer lies in the combination of the widespread adoption of off balance sheet funding and pro-cyclical leverage management practices. Off balance sheet funding and pro-cyclical management practices are respectively analysed in the following two sections. As shown, these practices provided a working mechanism for financial contagion through generalized

asset price declines and balance sheet contraction. The end result was a worldwide credit crunch and a global slowdown of economic growth.

(a) *Off balance sheet funding*

Off balance sheet funding is a form of funding that enables a firm to obtain finance: (i) without at the same time showing debt on its balance sheet and (ii) through the issue of high credit rated securities against a collateral pool of risky assets (i.e., securitization).<sup>9</sup> As such it enables financial institutions to obtain liquidity, improve the debt ratios that analysts use to assess the financial risk of a firm and expand their borrowing capacity.<sup>10</sup>

In the subprime crisis episode, off balance sheet financing was instrumented through the creation of new and independent legal entities termed special purpose vehicles (SPVs) and the sale to SPVs of a designated portfolio of assets that included residential mortgage loans.

Against this designated portfolio of assets (i.e., collaterals), the SPVs issued liabilities (i.e., debt) in the form of fixed income securities to be sold to investors. The fixed income securities, which represented a significant part of the equity of major banks in the developed world, are known as asset-backed securities (or more precisely in the subprime episode as mortgage-backed securities) (see table 1). Collateralized debt obligations (CDOs) are a special type of asset-backed security.<sup>11</sup>

<sup>6</sup> This estimate is provided by Blanchard (2008) and refers to the losses of subprime loans and securities by October 2007. This is the same estimate as that provided by Greenlaw et al. (2008). The estimate provided by Hatzius (2008) is slightly higher and of the order of US\$ 500 billion.

<sup>7</sup> These estimates are based on Blanchard (2008).

<sup>8</sup> See, Eichengreen (2009), Greenlaw et al. (2008); Blanchard (2008); Hatzius (2008); Adrian and Shin (2008 a/, 2008 b/, 2008 c/) for an analysis of the effects of the crisis focusing on the disproportion between the trigger of the crisis and its effects. Prior to the crisis a similar question was posed by Bernanke et al. (1996), namely, how can small impulses provide large aggregate fluctuations in economic activity? These authors named this mechanism the financial accelerator. The IMF poses a similar question in the World Economic Outlook published in April 2009 (see page 2, Chapter 1).

<sup>9</sup> A more general definition is “any form of funding that avoids placing owners’ equity, liabilities or assets on a firm’s balance sheet.” By contrast, using balance sheet funding means making any form of funding, whether equity or debt, appear on the balance sheet (see, <http://www.riskglossary.com>).

<sup>10</sup> Up until the eruption of the 2007-2008 subprime crisis, the major investment banks of the United States included Bear Sterns, Merrill Lynch, Lehman Brothers, Goldman Sachs and Morgan Stanley. Bear Sterns collapsed in 2008 and was sold to JP Morgan Chase. In spite of having weathered the Great Depression, Merrill Lynch also collapsed during the 2007 crisis and was sold in 2008 to Bank of America. Lehman Brothers filed for bankruptcy in 2008 and was bought by Barclays plc. Finally, Morgan Stanley and Goldman Sachs survived the crisis but were converted into commercial banking institutions in 2008.

<sup>11</sup> This is referred to in the literature as securitization. It is defined as the process of pooling assets of varying quality and risk in order to repackage them into tranches of securities that differ in liquidity, maturity, contingency and risk, and each appeal to a particular clientele of investors. Securitization started in the 1970’s as a way for financial institutions and corporations to find new sources of funding —either by moving assets off their balance sheets or by borrowing against them to refinance at a lower market rate.

TABLE 1

## Percentage of asset-backed securities over equity for selected financial institutions

Financial Institution	Country	Asset-backed securities (US\$ billion)	Equity (US\$ billion)	Asset-backed securities over equity (In percentages)
Citibank	United States	93	120	77.4
ABN Amro	Europe	69	34	201.1
Bank of America	United States	46	136	33.7
HBO	Europe	44	42	105.6
JP Morgan Chase	United States	42	116	36.1
HSBC	Europe	39	123	32.1
Société Générale	Europe	39	44	87.2
Deutsche bank	Europe	38	44	87.8
Barclays	Europe	33	54	61.5
WestLB	Europe	30	9	336.6

Source: Acharya and Richardson (2009).

The SPV transferred the proceeds received from the sale of securities to the originating institution. Thus, the originating institution increased the value of its assets without showing a concomitant increase in its liabilities (debt) on its balance sheet.

The value of the principal and the interest yielded by these securities issued by the SPV depended on the cash flow produced by the designated portfolio of assets, that is, by residential mortgage loans. The SPV guaranteed that it was in a position to make the payments on its debt commitments by de-linking the credit quality of the securities it issued from the solvency status of the originating financial institution (in other words, bankruptcy was an extremely remote possibility for the SPV).

The SPV provided further protection to investors against possible losses on the underlying assets by dividing the securities issued into slices (i.e., tranches) of different seniority, broadly-speaking senior, mezzanine and junior tranches. In the case of subprime mortgages, the most junior tranche was overcollateralized.<sup>12</sup> The SPV tranching process implied that payments on the securities were to be first made to the senior tranches, then to the mezzanine tranches and then to the junior ones. Losses were first absorbed by the junior tranches, then by the mezzanine tranches and then ultimately by the senior tranches.

This process of subordination acted as a form of credit protection and enhancement because it protected senior asset tranches against loss of payments stemming from defaults and guaranteed a very high probability of payment. Subordination ensures that, as noted by Nadauld and Sherlund (2008 p.9), “loans that default first will destroy the principal balance of the overcollateralization before touching any tranche more senior. Only after the overcollateralization principal has been fully exhausted will defaults accrue to the next most junior tranche. Thus senior tranches benefit from ‘thick’ junior tranches, and in this way, subordination acts as a form of credit protection.”

Following the logic of this prioritization and subordination scheme, the most senior tranches were also the ones that received the highest credit ratings, followed by the mezzanine and junior tranches.

The design of SPVs implied that even if the senior security tranches were issued against risky collateral (such as subprime mortgage loans), these securities would still receive a high credit rating, that is, they would be considered ‘prime’ securities. This is due, in the first stage, to the fact that the credit rating of the securities issued by the SPVs are, by virtue of their creation, independent or again ‘delinked’ from the credit quality of the originator or issuer of the asset (or collateral) in question.<sup>13</sup> In a second stage, the SPVs would also provide further protection to the senior tranches against losses on the underlying assets by guaranteeing the respective payments on principal and interest.

<sup>12</sup> A tranche is said to be overcollateralized when ‘the principal balance of the mortgage loans exceeded the principal balance of all the securities (debt) issued by the SPV.’ See Aschcraft and Shuermann (2008, p. 29).

<sup>13</sup> That is, the SPV is bankruptcy remote.

In the case of the subprime crisis episode, the representative subprime mortgage securitization structure concentrated the bulk of the investment in the senior asset tranches. Empirical evidence for the period 1997-2007 shows that the total principal balance of senior tranches represented on average 81% of total principal deals.<sup>14</sup>

In summary, the off balance sheet practice allowed the transformation of risky assets (such as subprime mortgages) into 'safe and high credit rated securities.' At the same time, the deconstruction of a financial

institution into an on-balance entity (the institution itself) and an off balance one (the SPV) allowed the former (through the transfer of income receipts from the off balance institution) to have access to an untapped source of financing and liquidity, without showing at the same time, the corresponding debt on their balance sheets.

The procedure made it very difficult to judge and value risk because it led to an opaque ownership structure that obscured the identity of the agents holding the underlying risk. Also the lack of transparency tended to result in the mispricing of asset values. The process of off balance sheet funding cum securitization and its main consequences for assessing risk are summarized in table 2 below.

<sup>14</sup> See Gorton (2008).

TABLE 2

**Steps in the off balance-securitization process  
and its consequences for risk assessment**

Steps in the off balance-securitization process	Consequences for risk assessment
<p>Step 1: A mortgage lender, such as a bank, extends a loan through a broker or agent to a homeowner.</p>	<p>Brokers and agents are paid an up-front fee that is unadjusted for borrower quality. Bonuses reward the growth of business. Brokers and agents are not part of the bank staff and thus outside regulation.</p>
<p>Step 2: The mortgage lender then sells the loan to one of the government-sponsored enterprises or agencies or to a private entity, such as a bank or finance company (an investment bank).</p>	<p>Mortgage lenders have no incentives to closely scrutinize borrower quality as they are aware that products would be repackaged and sold. Mortgage lenders did not hold assets to maturity.</p> <p>Profits create incentives to mortgage lenders to obtain new loans.</p> <p>The lender can still service the mortgage, making this process invisible to the borrower.</p>
<p>Step 3: The agency or private entity, through a SPV, then takes a number of the mortgage loans it has purchased and bundles them together into a "pool" product (the actual number of individual mortgages in the pool can vary from a few to thousands of loans).</p>	<p>The mortgage-backed securities are created through financial entities known as special purpose vehicles (SPVs) which are not under the control of banks and have an off balance sheet status.</p> <p>The existence of tranching allows the construction of products with ratings suitable only for certain types of investment.</p> <p>Rating agencies make a large share of their profit from rating these 'pool' products.</p> <p>Fund managers receive bonuses for enhancing portfolio performance.</p>
<p>Mortgage payments, consisting of interest and principal, are passed through the chain, from the mortgage servicer to the bondholder.</p>	

Source: on the basis of Gorton (2008) and Ashcraft & Schuermann (2008).

The process of off balance sheet funding and securitization was successfully applied over time to subprime mortgage loan-based originations in the United States as long as the spot and future price (value) of the underlying asset (collateral) showed an upward trend, which happened to be the case during the boom phase. Table 3 shows that between 2001 and 2006, the percentage of subprime mortgage loans that were securitized increased from 50% to 81% of total subprime loans.

However, in the ‘distress phase’, when real estate prices collapsed, it became clear that the off balance sheet model, through its separation of real risk from financial risk and investor protection with the ‘tranching’ of securities, had encouraged excessive risk taking and thereby increased the vulnerability and fragility of financial institutions’ balance sheets. More to the point, it showed that securities could be downgraded to ‘subprime’ just as quickly during the bust as they had risen to ‘prime’ during the boom.

(b) *Pro-cyclical leverage as the amplifying mechanism*

The losses resulting from the decline in real estate sector values were not limited to the subprime mortgage sector; they were witnessed among some of the most important financial institutions in the United States and other parts of the world as well. This can be explained by the widespread adoption

of the combination of high leverage ratios (which shows an extensive reliance on debt financing) and pro-cyclical leverage management practices.<sup>15</sup>

The leverage ratio reflects the extent to which financial intermediaries use debt to finance the acquisition of assets. The greater the leverage ratio of a financial intermediary is, the greater its level of indebtedness. Relying heavily on debt financing may impact negatively on the credit rating of a financial intermediary and make it difficult for funds to be raised in the future.

In addition, since equity is a cushion against insolvency, the greater the dependency on debt financing, the smaller the buffer that the financial intermediary in question has against any unforeseen change in asset values. In short, relying heavily on debt financing implies that a financial intermediary assumes a higher risk by becoming more exposed and vulnerable to illiquidity and, more importantly, to insolvency.

However, although leverage ratios that show an extensive reliance on debt financing entail greater risks, they also create significant profit opportunities since the higher the leverage ratio, the higher the rate

<sup>15</sup> Obviously, as shown below, the leverage ratios are higher for financial institutions such as the investment banks that are not subject to the regulation applied to commercial banks.

TABLE 3

**Mortgage Originations and Subprime Securitization**

Year	Total mortgage originations (US\$ billions)	Subprime originations (US\$ billions)	Subprime share in total originations (Percentage of dollar value)	Subprime mortgage-backed securities (US\$ billions)	Percentage of subprime securitized mortgages (Percentage of dollar value)
2001	2 215	190	8.6	95	50.4
2002	2 885	231	8.0	121	52.7
2003	3 945	335	8.5	202	60.5
2004	2 920	540	18.5	401	74.3
2005	3 120	625	20.0	507	81.2
2006	2 980	600	20.1	483	80.5

Source: Gorton (2008).

of return over equity.<sup>16</sup> In this sense, the expectation of higher profitability provides a significant incentive to overleverage.

In congruence with this, the available empirical evidence on the leverage ratios across regions and countries indicates that financial institutions rely extensively on debt financing. In 2007, the commercial banks of the United States exhibited average leverage ratios of 10-12, while those recorded by investment banks were higher, reaching the 20-30 range. In the case of Japan, the average leverage ratio stands at 18 and in Europe it reached 34 (see figure 1 below).<sup>17</sup>

Moreover, available empirical evidence also indicates that, the correlation coefficient for the period 1990-2007 between the average leverage ratio

<sup>16</sup> If an investment bank has a 30:1 leverage ratio as was the case prior to their virtual extinction, the bank can borrow US\$ 3,000 per US\$ 100 in capital. If it is assumed that the rate of interest on the loan is 5% and the bank earns 6% on its total new capital (3,000 + 100 = 3,100), the bank can earn a profit of US\$ 129 (or a 29% rate of return on the original capital of US\$ 100). At a more formal level, this can be seen through a simple banking profit identity, also known as the Du Pont de Nemours and Company return over equity (ROE) decomposition, which states that the ratio of earnings to equity equals the product of the ratio of earnings to assets and assets to equity. That is,

$$\frac{\text{Earnings}}{\text{Equity}} = \left( \frac{\text{Earnings}}{\text{Assets}} \right) * \left( \frac{\text{Assets}}{\text{Equity}} \right)$$

where  $\frac{\text{Assets}}{\text{Equity}} = \text{Leverage}$  and thus,

$$\frac{\text{Earnings}}{\text{Equity}} = \frac{\text{Earnings}}{\text{Assets}} * \text{Leverage}$$

As a result, for a given assets to equity ratio, the greater the leverage is, the greater the profit opportunities captured by the ratio of earnings over equity. However, high leverage ratios also lead to very high losses. If for any reason there is a decline of 10% in the value of the total investment of US\$ 3,100, the total value of the investment after taxes will be equal to US\$ 2,940. However, the debt is equal to US\$ 3,000 and, as a result, the bank has a loss of US\$ 60. In this case, the investment of the bank in this example is based on more than 100% debt. To some extent, this approximates the case of some of the investment banks such as Lehman, whose investment portfolio was based on 3% equity capital and 97% on borrowed funds. See Haughey, J. (2008).

<sup>17</sup> To put things in perspective, if the leverage ratio is equal to 10, then debt and equity finance represent 90% and 10% of the financial intermediary's acquisition of assets, respectively. With a leverage ratio of 34, the respective debt and equity ratios are 97% and 3% respectively. Figure 1 lists 37 financial institutions out of which 14 are European, 5 are Japanese and 16 are from the United States. The two remaining institutions are from the Middle East and Asia, respectively. The financial institutions from the United States comprise commercial banks, savings institutions, credit unions, government-sponsored enterprises and brokers/hedge funds.

of the most important banks in the United States and that of earnings over equity is equal to 0.69, and that it is statistically significant at the 95% level of confidence.

Financial institutions not only exhibit high leverage ratios, but also manage leverage on a pro-cyclical basis. In other words, banks adjust their leverage in reaction to a rise or fall in the value of their balance sheet assets. More precisely, they tend to adjust the leverage ratio upwards when the economy experiences a boom and asset prices increase. Contrarily, banks tend to adjust the leverage ratio downwards (deleverage) when the economy experiences a recession and asset prices decline.<sup>18</sup>

Pro-cyclical leverage management is explained by risk considerations. Financial institutions and other firms adjust their balance sheet according to the expected risk of loss on their asset portfolios. During boom conditions, the expected risk of loss among financial institutions and other firms is low and, as a result, they tend to increase their leverage by acquiring assets through debt financing. Contrarily, during bust conditions, the expected risk of loss among financial institutions and other firms is high and, as a result, they tend to deleverage by selling assets with a view to reducing debt.

The available empirical evidence for the United States investment banks shows that these financial institutions increased their leverage from 21 to 30 during the period November 2001-November 2007, which was an expansionary phase of the cycle. On the contrary, they decreased their leverage (or they deleveraged) starting in 2007 when the recession started to take hold of the United States economy.

This means that in the period November 2001-November 2007 investment banks began to rely more on debt financing. During this period, investment banks, on average, increased the proportion of assets financed by debt from 95% to 98%.<sup>19</sup> By increasing the proportion of debt financing, banks became riskier. However, at the same time they became more

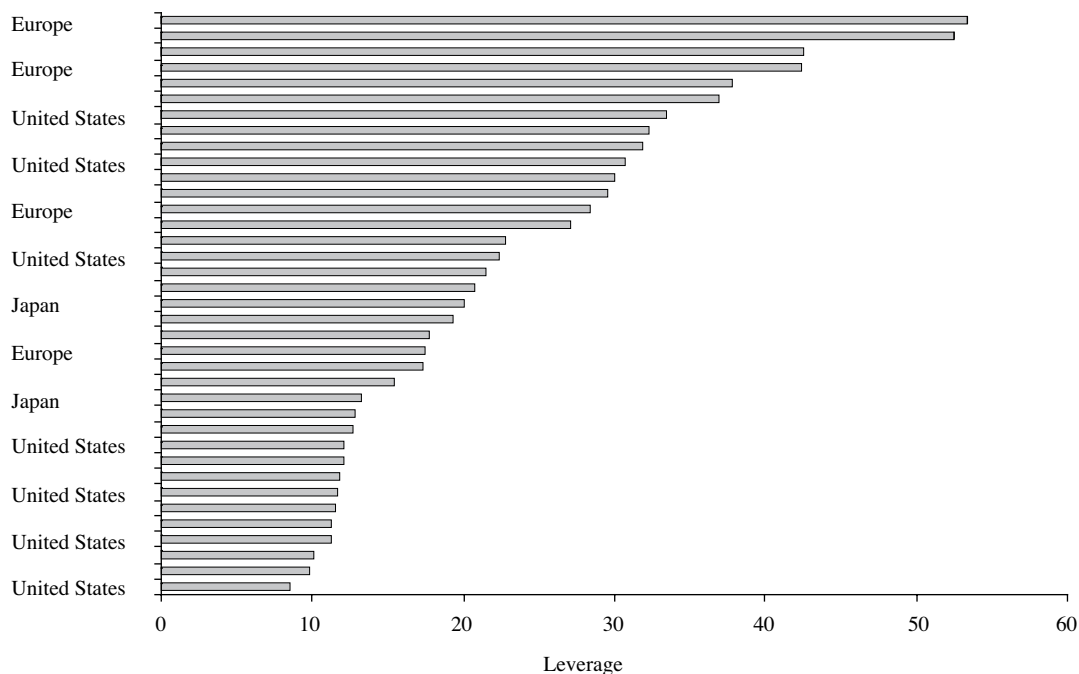
<sup>18</sup> Adrian and Shin (2008a/, p.3) define pro-cyclical leverage management in the following way: "...there is a positive relationship between changes in leverage and changes in balance sheet size. Far from being passive, financial intermediaries adjust their balance sheets actively and do so in such a way that leverage is high during booms and low during busts. Leverage is pro-cyclical in this sense." Pro-cyclical leverage entails downward sloping demand curves and upward sloping supply curves. As a result the equilibrium is unstable.

<sup>19</sup> See footnote 16 above.



FIGURE 1

**Leverage ratios for selected financial institutions (2007)**



Country/Region	Average	St. Dev.
United States	15.5	7.2
Japan	18.0	3.6
Europe	34.3	10.9

Source: on the basis of Bloomberg (November, 2008)

profitable. The empirical evidence shows that during this time the net earnings of most investment banks more than doubled.<sup>20</sup>

In the same way that high leverage ratios can yield high profits in the upward phase of the cycle, the shift to lower leverage ratios in the downward phase of the cycle can entail significant losses. This is due to the fact that, when balance sheet growth is sustained mainly by overborrowing and excessive debt, financial institutions will struggle to pay down their debts in the downturn by selling assets. The losses can become systemic when such sales become a widely adopted practice.

The sole action of one institution may succeed in reducing debt and not produce systemic effects.

However, the same action by many or the most important financial institutions and other firms can produce systemic effects by igniting a cumulative process of asset debt deflation as changes in debt financing (or the adjustment of leverage) and in asset prices ‘reinforce each other in an amplification of the financial cycle’.<sup>21</sup> In this way, pro-cyclical leverage management practices entails the propagation of contagion through cumulative asset price deflation in the distress phase.

This perverse cumulative process provides a working mechanism for financial contagion in the present current crisis episode. Indeed, in the case of the subprime crisis episode, contagion worked through asset price declines and balance sheet contraction.

<sup>20</sup> Own computations based on Bloomberg (2008).

<sup>21</sup> Greenlaw et al. (2008) p. 30.

These were caused by sharp falls in the asset-backed collateral, which in this case consisted of real estate mortgages held in large quantities by financial institutions.<sup>22</sup> The working dynamics of this mechanism involved declines in the value of mortgage-backed asset securities that were matched by commensurate falls in the price of equity and followed by adjustments in the leverage ratio through debt reduction achieved via the sale of assets.

The empirical evidence shows that from the moment the most recent recession began in November 2007 in the United States (and the values of assets fell due to the sharp decline in house prices), the financial sector began a process of deleveraging. Between November 2007 and April 2008, the average leverage ratio of investment banks in the United States declined from 30 to 24. The deleveraging process was accompanied by an average contraction in the value of assets of 20% for investment banks.<sup>23</sup>

In this sense, contrary to other financial crisis episodes, the contagion mechanisms in the subprime financial crisis did not reflect only the domino effect of default.<sup>24</sup> As explained by Adrian and Shin (2008 b/ p.2), “If the domino effect of financial contagion is the relevant one... then defaults on subprime mortgages would have had limited impact.”<sup>25</sup> This is because the exposure to the subprime sector is small relative to the total size of the balance sheet, and to the capital held by the financial institutions themselves. Any defaults by subprime borrowers could easily be absorbed by the total capital of the financial sector.”

To summarize, generalized pro-cyclical leverage management can lead to widespread debt reduction, resulting in an excess supply of assets that puts

downward pressures on their price. Then, a continued fall in asset prices leads to continued adjustments in the leverage ratio which can in turn depress the price of assets even further.

Asset price deflation can have significant effects on liquidity as the reductions in equity and contractions in balance sheets undermine the capacity of banks to lend. Hence, the stage is set for a ‘credit crunch’ since, as argued by Greenlaw and others, (2008, p.30) aggregate liquidity refers to the rate of growth of balance sheets.

An analytical exercise undertaken by Greenlaw and others (2007) shows that for the current subprime crisis a US\$ 200 billion loss (such as that suffered by the leveraged sector in the United States) can result in an aggregate asset contraction equivalent to US\$ 2 trillion assuming a 5% decline in leverage. In a similar vein, a 10% decline in leverage can result in a contraction of the financial system aggregate balance sheet of US\$ 3 trillion. In other words, a 5% decline in leverage multiplies initial balance sheet losses by 10. A 10% decline amplifies initial losses by a factor of 15.

The subprime crisis has led to significant contractions in asset prices and financial institutions’ balance sheets. The crisis has affected more than 63 of the most important financial institutions in the world. Recently, it has been estimated that the subprime crisis resulted in a loss in the capital valuation of financial assets of US\$ 50 trillion in 2008 worldwide, which is roughly the equivalent of the world’s GDP for that year.<sup>26</sup> In turn, the contraction in the value of assets and the balance sheets of financial institutions has led to a notable reduction in credit availability (i.e. to a credit crunch).

<sup>22</sup> As put by Greenlaw and others (2008, p.31): “...mortgages and asset-backed securities built on mortgage assets are held in large quantities by leveraged institutions –by the broker dealers themselves at the warehousing stage of the securitization process, by hedge funds specializing in mortgage securities and by the off-balance sheet vehicles that the banks had set up specifically with the purpose of carrying the mortgage securities and the collateralized debt obligations that have been written on them.” Federal Reserve data shows that these financial institutions held 37% of the mortgage debt at the end of the third quarter of 2007.

<sup>23</sup> Own computations based of Bloomberg (2008).

<sup>24</sup> See for example Adrian and Shin (2008a/ b/); Blanchard (2008);

Greenlaw et al. (2008); Hatzius (2008). For a supportive but critical view of this balance sheet contagion mechanism see, Mishkin (2008).

<sup>25</sup> The domino effect of financial contagion refers to a situation where “Bank A has borrowed from bank B, and bank B has borrowed from bank C, etc. Then, if A takes a hit and defaults, then bank B will suffer a loss. If the loss is large enough to wipe out B’s capital, then B defaults. Bank C then takes a hit. In turn, if the loss is big enough, bank C defaults, etc. We could dub this the “domino” model of financial contagion.” (Adrian and Shin, 2008 b/p.2).

<sup>26</sup> See, Loser (2009).

### III

## The potential effects of the global financial crisis on Latin American economies

The asset price deflation process described in the previous section has induced a major reduction in household and corporate financial wealth in the developed world, inducing a contraction in spending that in turn triggered a drop in private consumption and investment and, consequently, a contraction of aggregate demand. This pattern, which has been common to all the developed economies, is expected to cause, in 2009, world output to fall by close to 1.5% and global international trade by roughly 9.0%. This simultaneous contraction in world gdp and international trade is a phenomenon that has no precedent in recent history. Also, the decline in financial wealth and the greater need for financial resources among developed economies mean that international financial markets could become very illiquid during 2009.

The unprecedented magnitude and global reach of the financial crisis have led Latin American policymakers to focus their attention on its potential impact on the economies of the region. One of the main concerns is the intensity and duration of both these aspects of the crisis. It should be emphasized, however, that most governments in the region have announced aggregate demand policies to mitigate the effects, a reaction that is somehow different to those adopted in previous crisis episodes and one which may bring different results.

On the basis of recent data and past experience, the next subsections of the paper examine the future performance of Latin American economies as a result of the current international financial crisis and the policy responses adopted by the governments of the region.

#### 1. The global financial crisis: 'old wine in new goatskins' for Latin America

As things stand, the available data show that Latin American countries are not immune to the contagion effects of the current global financial crisis. Moreover, the manifestations of this episode in the region's economies, and their interpretation in light of the analysis of past episodes, suggest that the effects of the

global financial crisis on Latin American economies will conform to previous crisis patterns.

As in the case of past crises, the current episode is having a generalized, deep and protracted negative impact on the economies of the region. Indeed, in line with the preliminary evidence available in the region and the performance of the developed economies, forecasts for the region's growth have been systematically and drastically revised downwards since the start of the crisis. Given that the crisis is still unfolding, further revisions are most likely in order.

Also, as in past crisis episodes, the available evidence shows that the deep and protracted effects are strongly associated with the extent to which countries face restricted access to external finance and contractions in international trade flows. Finally, as in the past, the negative economic results and the restricted access to external finance is affecting a large number of countries across the region regardless of their specific characteristics, such as the degree of development of their financial markets, their level of integration with international financial markets, their trade openness, their export bias, their initial conditions prior to the onset of the crisis and their policy responses to crises.

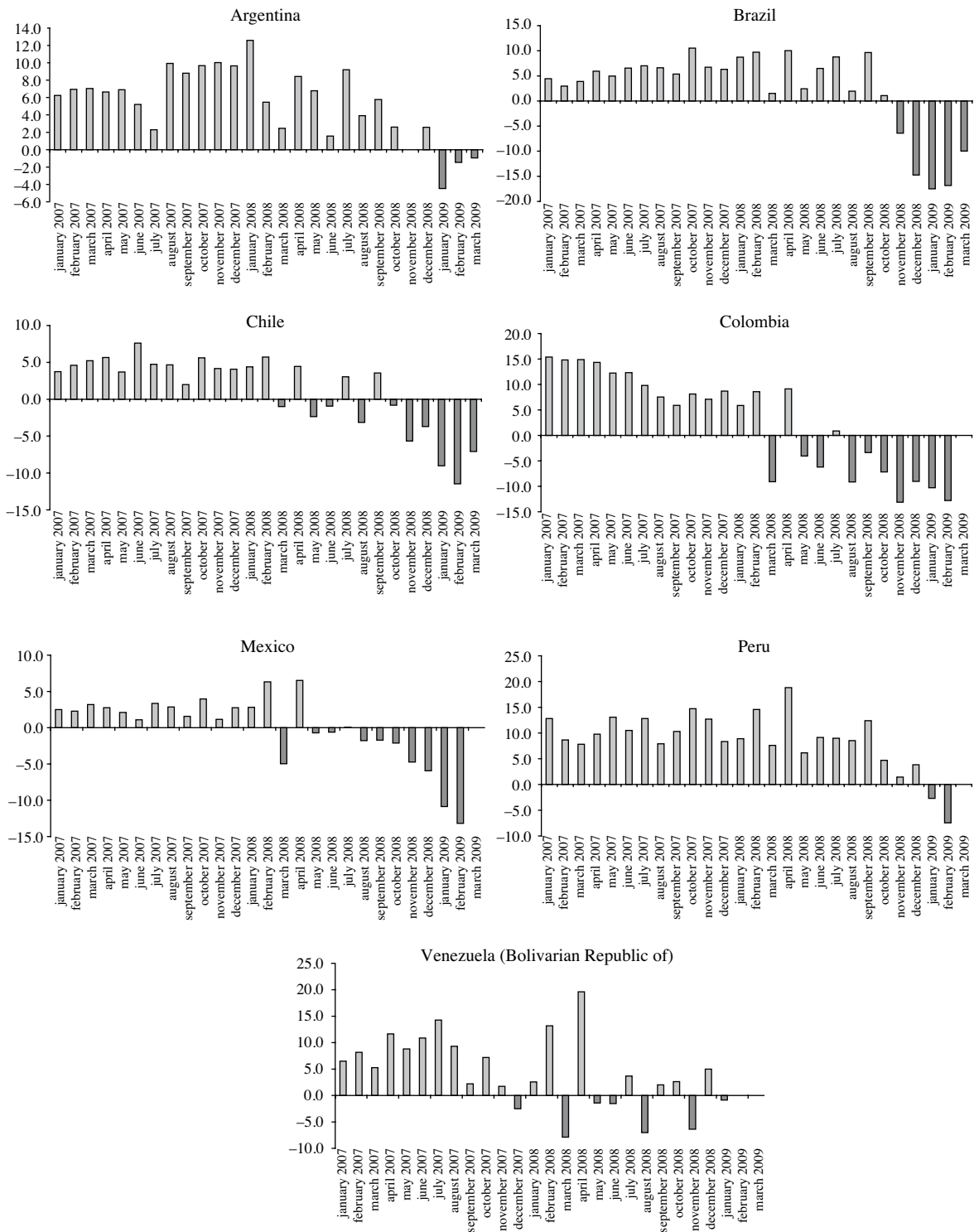
#### 2. The effects on real activity

The available evidence for the current episode shows that the region is heading for a new period of significant contraction in economic activity. Thus far, most of the LAC (7) economies (Argentina, Bolivarian Republic of Venezuela, Brazil, Chile, Colombia Mexico and Peru) have posted negative annual growth rates in industrial production (on the basis of monthly indexes), a pattern that in some cases has been repeated for several months (see figure 2).

Also, leading indicators of economic activity, such as lending to the private sector and imports, are validating the negative expectations arising from the behaviour of real activity dynamics. Growth rates of credit provided by financial institutions to the private

FIGURE 2

**Year-on-year variation in industrial production during the current financial crisis**  
(Percentages)



Source: own computations based on national sources of information (2009).

sector are still positive for almost the entire set of LAC(7) countries.<sup>27</sup> However, with the exception of the last semester of 2008, credit growth has declined and significantly so in countries like Argentina, Colombia and Mexico (see figure 3).

This limited evidence and the forecasts for the region's growth for 2009 are consistent with the behaviour of real variables registered during past crisis episodes.

The financial crisis episodes studied here had deep and long-lasting effects on economic activity. In all the cases considered, they produced a recession in the countries affected. Taking the entire sample of crisis episodes into account, the average contraction of per capita GDP for all countries affected was 6.2%.

A closer analysis on a case-by-case basis shows that the debt crisis was the most costly in terms of per capita GDP contractions and also in terms of the extent of its contagion effects. Indeed, the debt crisis affected all the countries in the sample without exception. During that crisis episode, the median decline of per capita GDP reached 12.6%. In the other episodes, the data also shows a contraction in GDP across the region, with a median decline ranging from 1.2% in the case of the Argentine crisis to 5.4% in the Asian-Russian case (see table 4).<sup>28</sup>

The negative effects of these crises have been not only significant but also persistent. The duration of the crisis (defined as the number of years required to recover the pre-crisis GDP level) was 13 years in the case of the debt crisis, 5 years in the savings and loan (S&L), 2 years in the Mexican, 5 years in the Asian-Russian, and 3 years in the Argentine crisis episodes.<sup>29</sup>

<sup>27</sup> In the case of the Bolivarian Republic of Venezuela, credit to the private sector has been declining since September of 2008.

<sup>28</sup> The maximum and minimum declines were 22.2% (Plurinational State of Bolivia) and 0.5% (Dominican Republic) during the debt crisis, 28.1% (Peru) and 0.24% (Costa Rica) during the savings and loan crisis, 7.8% (Mexico) and 0.13% (Ecuador) during the Mexican crisis, 21.7% (Argentina) and 1.6% (Costa Rica) during the Asian-Russian crisis, and 18.9% (Bolivarian Republic of Venezuela) and 0.12% (Guatemala) during the Argentine crisis. The contraction of per capita GDP in Argentina during the Argentine crisis episode was 16.5%. Authors like Cerra and Chaman-Saxena (2007) argue that the large and permanent output costs, induced by political and financial crises, could explain why the Latin American region has failed to reduce the income gap between the region's economies and the developed ones. Other authors like Calvo and Mendoza (2000), Calvo, Izquierdo and Talvi (2006), Edwards (2007) and Reinhart and Rogoff (2008b), have presented evidence of how sudden stops of capital inflows have induced the collapse of output in emerging markets, and in particular, in Latin American economies.

<sup>29</sup> The maximum duration of the declining phase of per capita GDP that started during the debt crisis was 6 years (Guatemala

In keeping with the evolution of output, unemployment tended to increase during these episodes. In general, all the countries included in the sample showed an increase in the unemployment rate ranging from 1.5 percentage points in the Mexican crisis to 4.0 percentage points in the Asian-Russian crisis. The average increase in unemployment for the whole sample was 3.9 percentage points (see table 5).

As in the case of GDP, the repercussions on unemployment were very persistent. The median duration (measured in the number of years needed to return to pre-crisis levels) of 6 years for the debt crisis, 18 years for the S&L and Asian crises, 11 years for the Mexican crisis, 8 years for the Asian-Russian crisis and 5 years for the Argentine crisis.

For its part, investment also presented drastic and persistent reductions across the region. Moreover, the drop in per capita investment tended to be significantly larger and more persistent than that of output. In the most severe of all the crises considered, the debt crisis, the contraction of investment was nearly four times that of output. In terms of persistence, after that crisis, it took per capita investment 15 years to return to its pre-crisis level, in other words, two more years than it took output to recover (see table 6).

### 3. The conditions of access to external finance

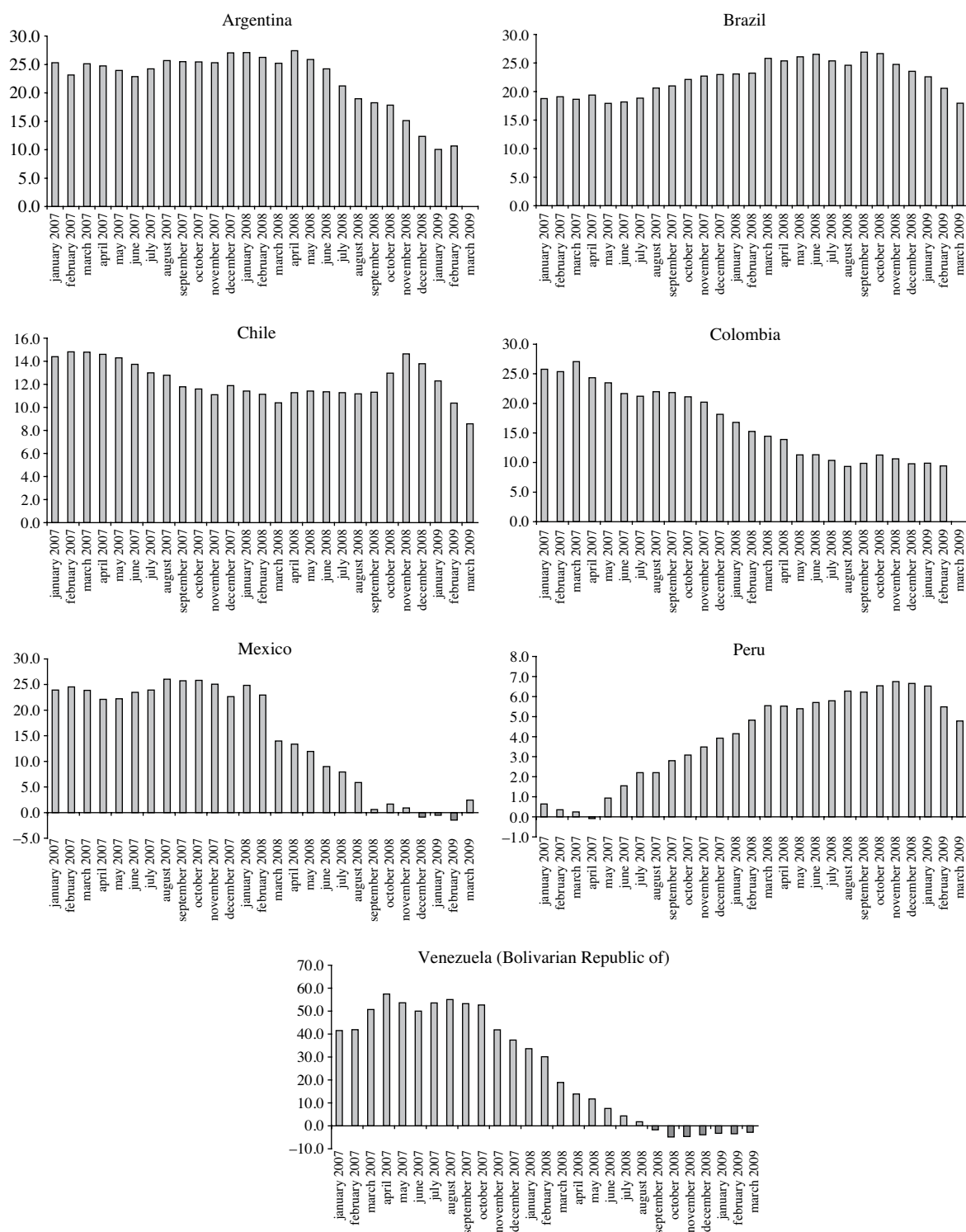
The effects on economic activity of the current and past episodes have a common denominator in the sense that they are strongly associated with the region's restricted access to financial markets and to the disruption in international trade flows that occurs in periods of economic distress. Both these aspects are addressed, respectively, in this and the following subsections.

The extent of the restriction in access to financial markets is ascertained by analysing the evolution of changes in both capital inflows and outflows,

and the Plurinational State of Bolivia) and the minimum one year (Dominican Republic), during the S&L crisis those values were 3 years (Argentina and Peru) and one year (Bolivarian Republic of Venezuela, Brazil, Costa Rica, Ecuador, El Salvador, Honduras, Mexico, Plurinational State of Bolivia and Uruguay). In the Asian-Russian episode, the maximum duration of the declining phase was 5 years (Paraguay) and the minimum one year (Chile, Ecuador, Honduras and the Plurinational State of Bolivia), during the Argentine crisis the maximum duration was two years (Argentina, Bolivarian Republic of Venezuela, Dominican Republic, Mexico, Paraguay and Uruguay).

FIGURE 3

**Year-on-year variation in credit to the private sector (banking system)  
during the current financial crisis, in real terms**  
(Percentages)



Source: own computations based on national sources of information (2009).

TABLE 4

**Variation in per capita GDP during previous international financial crisis episodes**

Crisis	Countries that experienced contraction (Number of countries)	Median duration of the declining phase (Number of years)	Median decline (Peak-to-trough) (Percentages)	Years to recover the pre-crisis level (Median) (Number of years)
1980-83: Debt	17	2	12.6	13
1987-91: Savings and Loan	14	1	2.3	5
1994-95: Mexican	10	1	2.0	2
1997-99: Asian-Russian	12	2	5.4	5
2001-02: Argentine	13	1	1.2	3

Source: own computations based on United Nations statistics (National Accounts database, 2009).

TABLE 5

**Variation in unemployment during previous international financial crisis episodes**

Crisis Episodes	Countries that experienced increase (Number of countries)	Median duration of the increase (Number of years)	Median increase in absolute terms (Trough-to-peak) (Percentages)	Years to recover the pre-crisis level (Median) (Number of years)
1980-83: Debt <sup>a</sup>	11	1	3.1	6
1987-91: Savings and Loan <sup>b</sup>	16	2	2.4	18
1994-95: Mexican <sup>c</sup>	17	2	1.5	11
1997-99: Asian-Russian <sup>c</sup>	15	2	4.0	8
2001-02: Argentine <sup>c</sup>	17	2	1.9	5

Source: own computations based on World Development Indicators, World Bank, 2009.

<sup>a</sup> 11 countries in the sample.

<sup>b</sup> 16 countries in the sample.

<sup>c</sup> 17 countries in the sample.

TABLE 6

**Variation in investment during previous international financial crisis episodes**

Crisis Episodes	Countries with contraction (Number of countries)	Median duration of the contraction (Number of years)	Median decline (Peak-to-trough) (Per capita)	Years to recover the pre-crisis level (Median) (Number of years)
1980-83: Debt	17	2	46.6	15
1987-91: Savings and Loan	17	2	16.7	5
1994-95: Mexican	15	1	13.7	4
1997-99: Asian-Russian	16	2	24.4	6
2001-02: Argentine	16	1	13.7	4

Source: own computations based on United Nations statistics (National Accounts Database, 2009).

which reflect the prevailing conditions in financial markets.<sup>30</sup>

Thus far, the evidence available on the dynamics of capital flows (measured as non-foreign direct investment (non-FDI) financial flows/GDP) is mixed. Figure 4 shows that Argentina and Colombia witnessed a change in their situation between 2007 and 2008 from being net recipients of non-FDI financial flows to net exporters of financial resources. Some economies such as, the Bolivarian Republic of Venezuela, Brazil and Mexico have not seen a significant variation in their conditions as net recipients of financial flows. Others, such as Chile and Peru have even improved their relative position in the same period. Nevertheless, at the aggregate level for LAC(7), the ratio of non-FDI financial flows to GDP dropped by 2% between the third quarter of 2007 and the third quarter of 2008 (see figure 4).

The restrictions in accessing financial flows are not unique to the present episode. It is in fact also a prominent feature of all financial crisis episodes considered here. The majority of the financial crises that have affected the region were characterized by “sudden stops” in capital inflows and substantial increases in capital outflows.<sup>31</sup> The median decline in capital inflows, from peak-to-through, was 8.4% of GDP during the debt crisis, 2.7% during the S&L crisis, 2.9% during the Mexican crisis, 4.4% during the Asian-Russian crisis and 4.5% during the Argentine crisis (see table 7).<sup>32</sup>

The reduction in capital inflows was accompanied by large capital outflows in the majority of countries.

<sup>30</sup> In the past three decades, Latin America has faced both financial and trade shocks, although their relative importance has tended to vary across countries and time periods. Nonetheless, in spite of the difficulties in isolating one crisis from another, the evidence shows that the region's GDP performance has had a stronger statistical association with the changes in external financial conditions than with the behavior of external aggregate demand. For instance, the coefficient of correlation between the GDP cycle and financial flows is positive and statistically significant at the 5% level for the 1980s and 1990s, reaching 0.52 and 0.54, respectively. For its part, the correlation of coefficient between the GDP cycle and that of the terms of trade was also positive and statistically significant, albeit at the 10% level for the 1990s (see Titelman, Perez-Caldentey and Minzer, 2008).

<sup>31</sup> Several explanations have been proposed to explain the dynamics of capital flows. Kaminsky, Reinhart and Vegh (2002) and Calvo and Talvi (2005) have suggested common financial intermediaries play a role in the sudden and generalized stop of financial flows. Calvo and Reinhart (1996) have pointed out the spillover effects that large neighbours could have in other smaller economies, and Calvo and Mendoza (1996) and Chari and Kehoe (2002) have argued that herd behavior by financial investors also explains why financial resources stop flowing to emerging market economies.

<sup>32</sup> There are also differences in the duration of the decline in inflows. The maximum duration of the declining phase during the debt

The median increase of capital outflows ranged from 1.2% to 2.9% of GDP in the different crisis episodes (see table 8).<sup>33</sup> In summary, the average regional reduction of net financial flows for the entire sample represented approximately 5.8% of GDP.

The drastic reductions in net financial flows were not limited to a small set of countries, but rather affected all the countries of the region independently of the geographical origin of the crisis, the countries' level of financial development (or initial conditions) or the degree of their integration with international financial markets. The declines in net capital flows and exports worsened the balance-of-payments position, inducing adjustments in international reserves and in the real exchange rate.

As in the case of past crises and consistent with the current less favourable external conditions, the more restricted access to financial flows is accompanied by an increase in the cost of accessing external financing. The Emerging Markets Bond Index (EMBI) for most economies in the region showed a sharp increase between August 2008 and March 2009, reaching a maximum in October 2008. This pattern has, with different intensity, occurred in all the countries (see figure 6).<sup>34</sup>

crisis was 6 years (El Salvador) and the minimum one year (Bolivarian Republic of Venezuela and Guatemala), during the S&L crisis the maximum value was 3 years (Argentina and Honduras) and the minimum one year (Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Mexico and Peru). During the Mexican crisis the maximum duration was 2 years (Argentina, Bolivarian Republic of Venezuela, Guatemala, Honduras, Mexico, Panama and Paraguay) and the minimum one year (Chile, Colombia, Costa Rica, Dominican Republic Ecuador, El Salvador and Peru). In the Asian-Russian case, the maximum duration was 5 years (Argentina, overlapping with other crisis episodes) and the minimum duration one year (Brazil, Chile, Costa Rica, Dominican Republic, Guatemala, Honduras, Mexico and Panama,). During the Argentine crisis episode the declining phase of inflows had a maximum duration of 4 years (Plurinational State of Bolivia) and one year in the Bolivarian Republic of Venezuela, Chile, Colombia, Costa Rica, Ecuador, Panama, Peru and Uruguay.

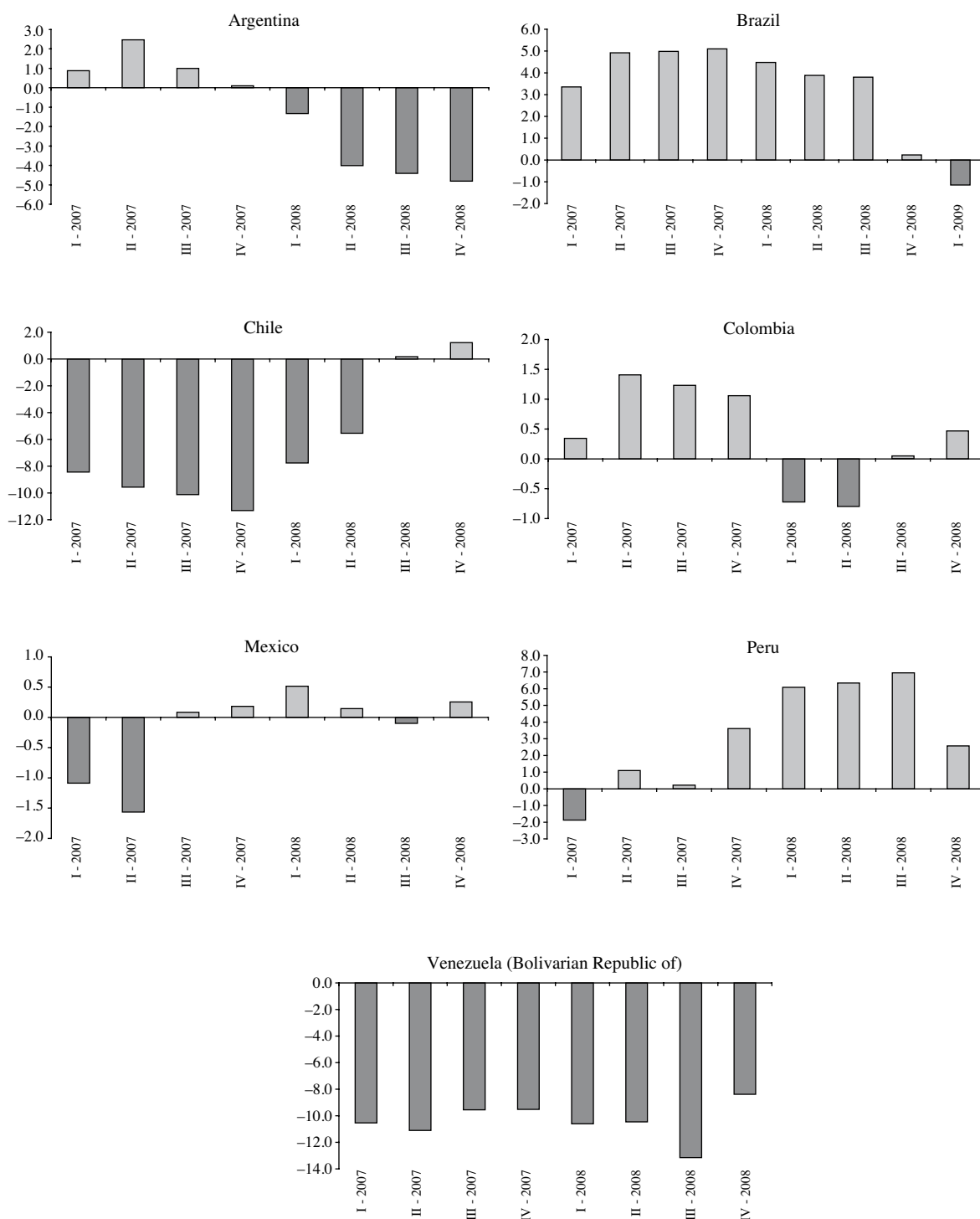
<sup>33</sup> Some studies, including Cuddington (1986), Dooley (1986) and Pineda (1998), have suggested that capital outflows, and in particular, capital outflows by private non-financial institutions, are the reaction of individuals in response to change in domestic risk that could be induced by an increase in expropriation risk, devaluation risk or inflation risk or any other changes in the expected return on domestic assets, in addition to changes in other fundamentals.

<sup>34</sup> The changes in the EMBI indicator, as well as other variables, for some countries in the region, has reflected not only the deterioration of their external conditions, but also the increase in risk associated with idiosyncratic political considerations that explain the differences in the embi level in the cases of the Bolivarian Republic of Venezuela and Argentina.



FIGURE 4

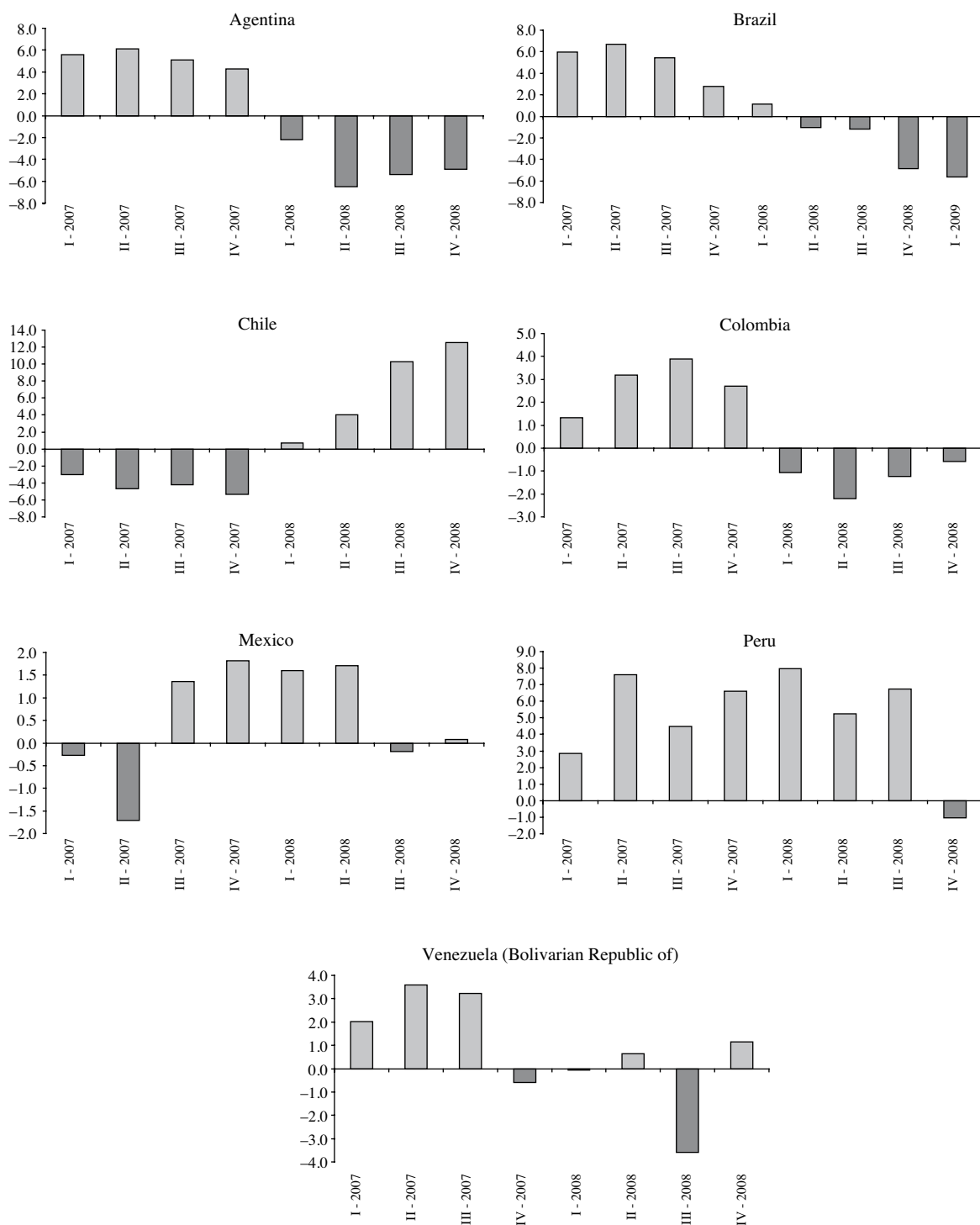
**Non-FDI financial flows during the current financial crisis**  
*(One-year cumulative values as percentages of GDP)*



Source: own computations based on national sources of information (2009).

FIGURE 5

**Non-FDI financial flows during the current financial crisis**  
*(Year-on-year variations in terms of GDP)*



Source: own computations based on national sources of information (2009).

TABLE 7

**Capital inflows during previous international financial crisis episodes**

Crisis Episodes	Countries that experienced contraction (Number of countries)	Median duration of the contraction (Number of years)	Median absolute decline (Peak-to-trough) (Percentages of GDP)
1980-83: Debt	17	2	8.4
1987-91: Savings and Loan	17	1	2.7
1994-95: Mexican	14	2	2.9
1997-99: Asian-Russian	17	2	4.4
2001-02: Argentine	16	2	4.5

Source: own computations based on ECLAC (2009).

TABLE 8

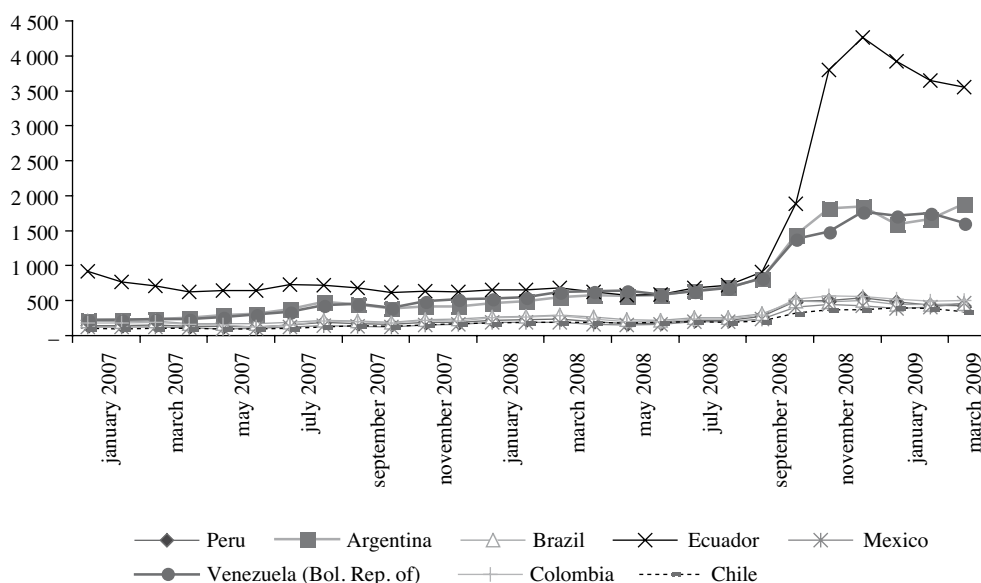
**Capital outflows during previous international financial crises episodes**

Crisis Episodes	Countries that experienced an increase (Number of countries)	Median duration of the increase (Number of years)	Median absolute increase (Peak-to-trough) (Percentages of GDP)
1980-83: Debt	15	1	1.2
1987-91: Savings and Loan	17	2	1.8
1994-95: Mexican	17	1	2.1
1997-99: Asian-Russian	17	1	1.4
2001-02: Argentine	17	1	2.9

Source: own computations based on ECLAC (2009).

FIGURE 6

**Latin America (8 countries): recent evolution of EMBI  
(Basis points)**



Source: own computations based on data from the central bank of Peru (2009).

#### 4. Export dynamics in the present and past crisis episodes

Besides being strongly related to the curtailment of financial flows in terms of volume and cost, the effects on economic activity of past and current episodes are also significantly associated with the disruption of international trade flows. More to the point, as in previous crisis episodes, export dynamics are playing an important role in transmitting the effects of the current financial crisis to the region.

The significant recession that has affected the developed world and the slowdown of the main market emerging economies have induced a significant reduction of global international trade, which is expected to decline by more than 9% in 2009 (WTO, 2009). The resulting decline in world aggregate demand has induced a sharp reduction in commodities prices, and similar conditions are projected to prevail in the near future.<sup>35</sup>

Moreover, the contraction of the external demand for manufacturing goods will also affect the capacity of Latin American countries to restrain the drop in non-commodity exports. Figure 7 illustrates the dynamics of LAC(7) exports during 2007 and 2008 and shows that the annual growth rate of exports<sup>36</sup> for all of the LAC(7) economies has been negative or has presented a significant slowdown since the second semester of 2008.<sup>37</sup>

<sup>35</sup> Between March 2008 and April 2009, oil prices declined by 53% in the case of West Texas Intermediate, close to US\$ 50 per barrel. In the same period, the JP Morgan composite commodities index indicates a contraction of 40%. For 2009, IMF estimates a reduction of 31.8% in oil prices and of 18.7% in prices for non-fuel commodities.

<sup>36</sup> Year-on-year variation as a percentage.

<sup>37</sup> For those countries in which exports fell (Argentina, Chile, Colombia, Mexico and Peru) the median decline was 29.3%

In past international financial crises the region also faced a contraction in external aggregate demand that was reflected in the decline of exports during those episodes.<sup>38</sup> On average, for the entire sample (all countries and all crisis episodes), the contraction of exports was 19.1%. The largest reductions in exports took place during the debt crisis and the Asian-Russian episode. The median decline of exports reached 38.2% in the former and 13.9% in the latter (see table 9).<sup>39</sup>

The shocks to exports also tended to be very persistent in all the crisis episodes. The median duration required for exports to recover their pre-crisis level was 10 years for the debt crisis, 7 years for the S&L crisis, 3 years for the Mexican crisis, 4 years for the Asian-Russian episode and 3 years for the Argentine episode.

As in past financial crises, the curtailment in financial flows and the drop in exports have resulted in a decline in the stock of international reserves for most economies (see figure 8).

The drops registered in international reserves for this episode are in line with those registered in past crisis episodes which ranged from 19% in the

between the fourth quarter of 2007 and the fourth quarter of 2008, and the difference in the growth rate for the country that posted a slowdown in exports (Brazil) was more than 12.7 percentage points for the same period.

<sup>38</sup> The importance of international trade as a crisis propagation channel was stressed by Eichengreen, Rose and Wyplosz (1996).

<sup>39</sup> During the debt crisis, the maximum reduction of exports, peak-to-trough, was 72% (Plurinational State of Bolivia) and the minimum was 14% (Mexico). In the S&L crisis, the maximum was 39% (Brazil) and the minimum 0.6% (Guatemala). During the Mexican crisis, the maximum reduction was 29% (Paraguay) and the minimum 3.13% Guatemala. During the Asian-Russian episode the maximum cumulative reduction of exports was 42% (Bolivarian Republic of Venezuela) and the minimum was 2.9% (Chile). In the Argentine crisis, the maximum decline in exports was 29.9% (Ecuador) and the minimum 1% (Argentina).

TABLE 9

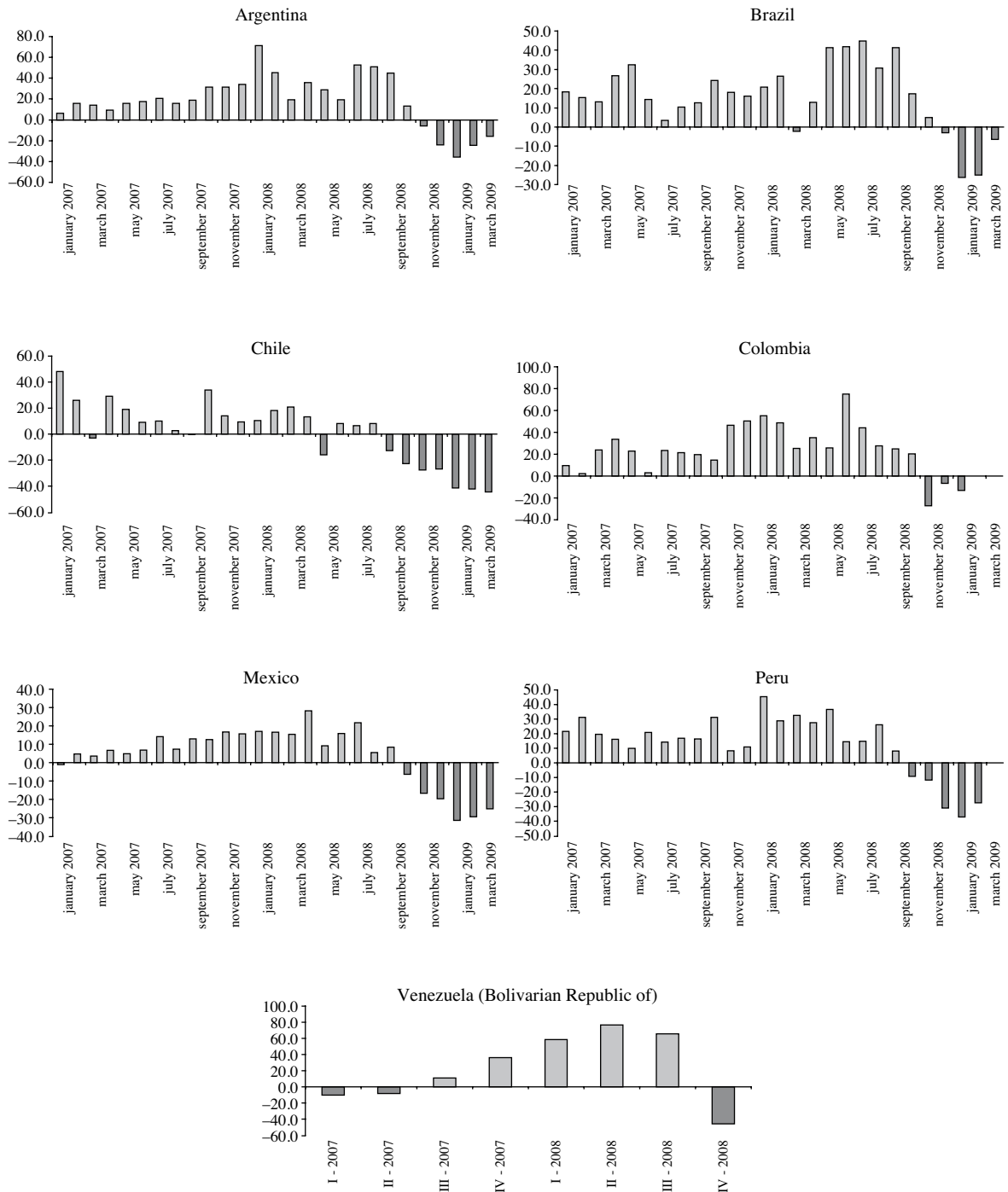
Exports during previous international financial crisis episodes

Crisis Episodes	Countries with contraction (Number of countries)	Median duration of the contraction (Number of years)	Median decline (Peak-to-trough) (Per capita)	Years to recover the pre-crisis level (Median) (Number of years)
1980-83: Debt	17	3	38.2	10
1987-91: Savings and Loan	17	1	10.7	7
1994-95: Mexican	10	1	4.1	3
1997-99: Asian-Russian	14	1	13.9	4
2001-02: Argentine	14	1	10.7	3

Source: own computations based on ECLAC (2009).

FIGURE 7

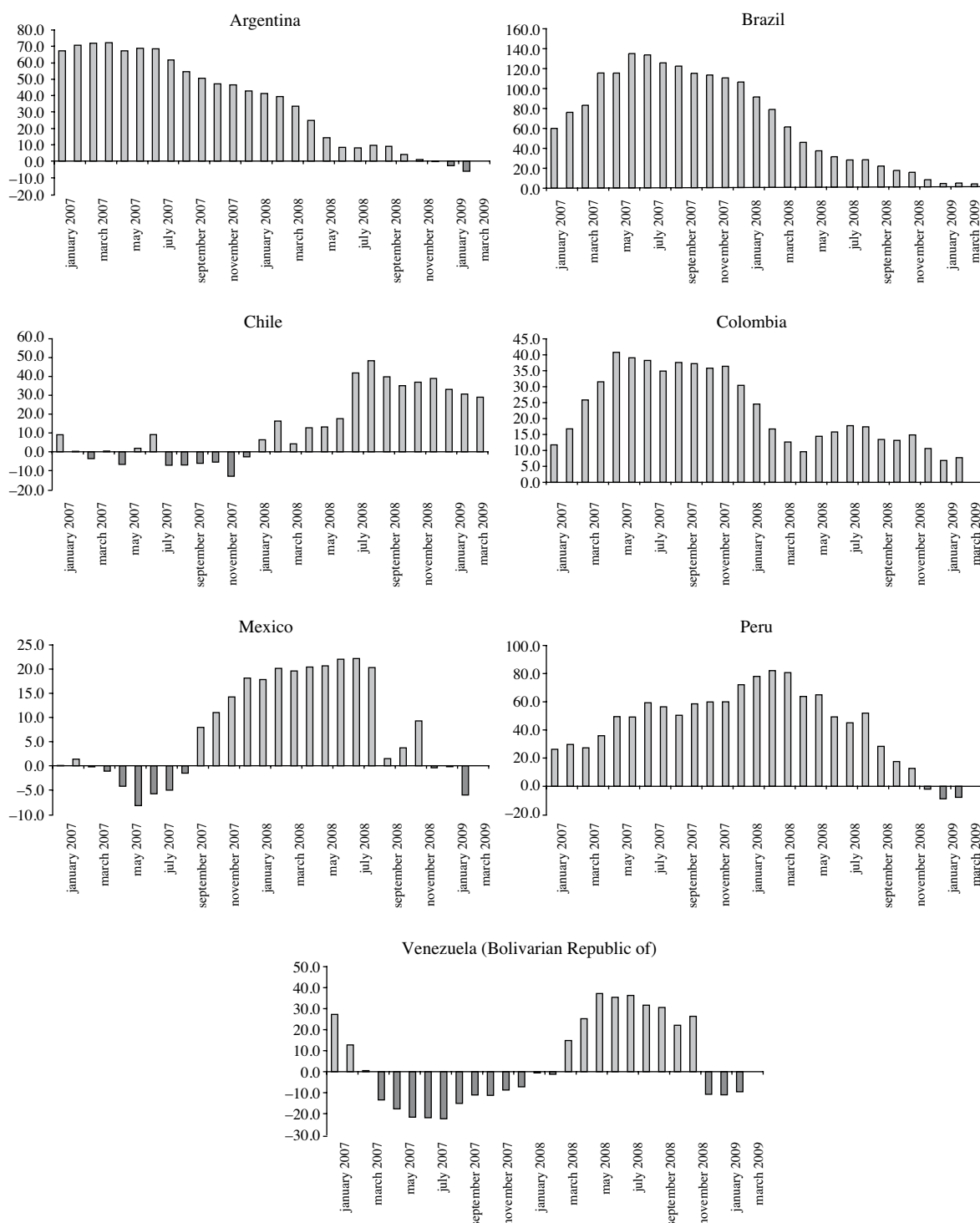
**Exports during the current financial crisis**  
(Year-on-year variations as percentages)



Source: own computations based on national sources of information (2009).

FIGURE 8

**International Reserves during the current financial crisis**  
(Year-on-year variations as percentages)



Source: own computations based on national sources of information (2009).

Mexican crisis and the Asian-Russian crisis, to 43% in the debt crisis (see table 10).<sup>40</sup>

Traditionally, international financial crises have been accompanied by deterioration in the stock markets and the depreciation of the nominal exchange rates across the region. During the current financial crisis, at least in its initial stages, there was an apparent, or temporal, decoupling of the dynamics of these markets in the region from those in the developed world. Both the stock markets and the nominal exchange rates of countries in the region were getting stronger while those markets in the developed world were sinking. This behaviour seems to have come to an end during the second semester of 2008, and the stock markets in LAC(7) have declined since June of 2008.

Regarding the dynamics of the nominal exchange rate, during this crisis episode, the exchange rate of LAC(7) went through two distinct phases. Until July of 2008, most of the nominal exchange rates across the region tended to appreciate. However, since August 2008, most countries have witnessed significant depreciations of their exchange rate, of more than 30% in the case of Mexico and Brazil.<sup>41</sup>

In a context of lower exports and a deceleration in net capital inflows, the growth rate of the international reserves of the LAC(7) economies has slowed down significantly since the second semester of 2008. The median deceleration of the international reserves growth rate between the second semester of 2007 and the second semester of 2008 was 6.9%.

<sup>40</sup> Notice that the adoption of more flexible exchange rate regimes in some countries has reduced their need for holding international reserves as a buffer stock to defend exchange rate parities or bands.

<sup>41</sup> The official exchange rate of the Bolivarian Republic of Venezuela has not been modified since March of 2005.

TABLE 10

**International reserves during previous international financial crisis episodes**  
(United States dollars)

Crisis Episodes	Countries with contraction (Number of countries)	Median duration of the contraction (Number of years)	Median decline (Peak-to-trough) (Percentages)
1980-83: Debt	17	1	42.7
1987-91: Savings and loan	15	1	40.5
1994-95: Mexican	9	1	19.1
1997-99: Asian-Russian	15	1	18.7
2001-02: Argentine	11	2	37.3

Source: own computations based on ECLAC (2009).

## IV Conclusion

The staggering effects of the current global financial crisis can be explained by the combination of off balance sheet funding and pro-cyclical leverage management.

Off balance sheet funding practices provided the basis for the gestation of the crisis. Off balance sheet practices seemingly separated the risk of investing in an asset or asset-backed security (financial risk) from

the risk associated with the originator of the asset or security and even from the risk of the asset or security itself (real risk). Moreover, off balance sheet practices, through credit enhancement techniques, blurred the distinction between the relative risks of a broad spectrum of assets. As a result, risk perceptions on assets tended to move in tandem with the boom and bust phases of the crisis. In the boom phase, assets

were considered 'prime', while in the bust phase they were downgraded to the 'subprime' category.

The effects of off balance sheet funding were amplified by pro-cyclical leverage management practices. Pro-cyclical leverage management meant that financial institutions pursued a strategy of expanding their asset base by relying on debt financing in the boom phase. Then, in the bust phase, they would try to reduce their debt. The generalized practice of pro-cyclical management resulted in cumulative increases in asset prices in the boom phase and cumulative declines in the bust phase.

Generalized and continued asset price deflation in the bust phase contracted the balance sheets of financial institutions and curtailed their capacity to lend, which set the stage for a worldwide credit crunch and the ensuing global slowdown.

The effects of the crisis are being felt not only by developed countries but also by developing countries. In the case of Latin America, the analysis and the empirical evidence suggest that the current episode and its manifestations are likely to conform to previous crisis patterns. That is, the current global financial crisis is "old wine in new goatskins" for Latin America.

Previous crisis patterns are epitomized by their deep and lasting negative effects on the economic performance of the region. These are explained mainly by the extent to which countries face restricted access to external finance and the disruption of international trade flows. Moreover, in accordance with previous crisis patterns, the negative economic results and the restricted access to external finance are affecting a large number of countries across the region regardless of their specific characteristics, such as the degree of development of their financial markets, their integration with international financial markets, the

openness of their economies, their exports bias, their initial economic conditions and the policy responses taken by their governments.

In the current crisis episode countries also face restricted access to finance and severe disruptions in international trade flows. Since the second semester of 2008, private financial flows have been slowing down and even reversing in some countries. The median reduction in non-FDI financial flows between the third quarter of 2007 and the third quarter of 2008 was 2% of GDP. Furthermore, private capital flows to the region are projected to be significantly smaller in 2009 than in 2008 (50%) and global trade is expected to fall by more than 9% during 2009. Some countries in the region have already been witnessing declines since the second semester of 2008.

Contrary to previous episodes, the current crisis has found the economies of the region in better fiscal and macroeconomic conditions, which translate into high levels of foreign assets and low unemployment and inflation rates. This improved macro context has allowed countries to adopt counter-cyclical policies to mitigate, at least initially, the negative effects of the severe contraction of external aggregate demand, as well as the possible reduction of international financial flows.<sup>42</sup>

As a result, the strength of the expected effects of the crisis on Latin American economies will be ultimately determined by the duration and intensity of the crisis in the developed economies and by the effectiveness of the counter-cyclical policies that the governments of the region have announced.

*(Original: English)*

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<sup>42</sup> See CEPAL (2009).



APPENDIX

Table 11  
*Past crisis episodes*

Country/Region (Crisis episode)	Crisis episodes	Increased levels of liquidity	Expansionary monetary policy	Financial deregulation and institutional change
Sweden (Nordic Crisis)	1991-1994	Ratio of bank lending to GDP rose from 43% to 63% between 1985 and 1990	The money market rate declined from 17% to 11% between 1984 and 1988. Thereafter these increased to reach 15% in 1991.	Abolition of liquidity ratios for banks (1983). Lifting of official lending guidelines by the Central Bank (1985). Removal of interest rate and lending ceilings for banks (1985).
Finland (Nordic Crisis)	1991-1994	Ratio of bank lending to GDP rose from 64% to 92% between 1985 and 1990	The money market rate declined from 15% to 10% between 1984 and 1988. Thereafter these increased to reach 15% in 1990.	Removal of interest rate ceilings (1986) and liberalization of corporate lending from abroad (1987).
Norway (Nordic Crisis)	1991-1994	Ratio of bank lending to GDP rose from 71% to 80% between 1985 and 1990	The money market rate declined from 14.2% to 11.4% between 1986 and 1990. Rates increase to reach 20% in 1993.	Removal of quantitative regulation of banks' lending and interest rate caps on lending (1984-1985).
Latin America	1982-1983	Net financial flows increased from 3.4% to 7.4% of GDP between 1973 and 1981.		Variable interest rate or rollover loans "designed to protect banks against adverse interest-rate developments on their short-term deposits."
Thailand (Asian Crisis)	1997-1998	Ratio of bank lending to GDP rose from 98% to 147% between 1992 and 1996.	The money market rate declined from 11.2% to 6.5% between 1991 and 1993. Rates increase to reach 16% and 13% in 1997 and 1998.	Deregulation of FDI and liberalization of cross-border financial transactions (1980s and 1990s).
South Korea (Asian Crisis)	1997-1998	Ratio of bank lending to GDP rose from 61% to 72% between 1992 and 1996	The money market rate declined from 17% to 12% between 1991 and 1993. Rates increase to reach 13.2% and 15% in 1997 and 1998.	Lifting of restrictions on the capital account at the beginning of the 1990s. Inbound foreign investment liberalized. Banks are allowed to borrow from abroad. Increase in limits of external indebtedness for local banks.
Malaysia (Asian Crisis)	1997-1998	Ratio of bank lending to GDP rose from 143% to 187% between 1992 and 1996	The money market rate declined from 7.1% to 4.2% between 1993 and 1994. Rates increase to reach 7.6% and 8.5% in 1997 and 1998.	Deregulation of FDI and liberalization of cross-border financial transactions (1980s and 1990s).
Japan	1991-2001	Ratio of bank lending to GDP rose from 158% to 197% between 1985-1990	Interest rates declined from 7.3% to 3.8% between 1985 and 1989. Thereafter rates increased, reaching a peak of 7.5% in 1991.	Liberalization of deposit rates and lifting of banks capital controls. Absence of regulatory distinctions among financial institutions. Establishment of offshore market.
United States (Savings and Loan)	1986-1995	Ratio of bank lending to GDP rose from 92% to 100% between 1980 and 1985	The federal funds rate declined from 12.3% in 1982 to 6.7% in 1987 and increased thereafter to levels comprised between 8%-9% in the period 1989-1990.	Depository Institutions Deregulation and Monetary Control Act (the Garn-St Germain Act) (1982). Elimination of regulations initially designed to prevent lending excesses and minimize failures.
United States (Dot-Com)	2001	Ratio of bank lending to GDP rose from 135% to 170% between 1994-2000		Financial Services Modernization Act (1999).
United States (Subprime)	2007-2008	Ratio of bank lending to GDP rose from 169% to 209% between 2002 and 2006.	The Federal Funds rate fell from 6% to 1% between 2001 and 2003. There followed a change in the monetary policy stance and the federal funds rate increased to 5% in 2006.	Commodity Futures Modernization Act (2000).

Sources: The sources used for the Nordic Crisis include Hansen (2003); Barot and Takala (1998); Kennedy and Andersen (1994); and Girouard and Blöndal (2001). The source used for Latin America is Lamfalussy (2000). The sources used for the Japanese case include: Kennedy and Andersen (1994); Herring and Wächter (1999); and Honda (2003). The sources for the East Asian crisis include: Quigley (1999) and Senhadji, A. and Collins Ch. (2002). The sources used for the savings and loan crisis include Kennedy and Andersen (1994).

## Bibliography

- Acharya, V.V. and M. Richardson (2009), "Restoring Financial Stability: How to Repair a Failed System", document presented at the Financial Crisis and its Impact on Developing Countries' Growth Strategies and Prospects Meeting (Cambridge, Massachusetts, 20-21 April).
- Adrian, T. and H.S. Shin (2008a), "Liquidity and financial contagion", *Financial Stability Review*, No. 11 (special issue), Paris, Banque de France.
- (2008b), "Financial Intermediaries, Financial Stability and Monetary Policy", document prepared for the Federal Reserve Bank of Kansas City Symposium at Jackson Hole (21-23 August).
- (2008c), "Liquidity and Leverage", unpublished.
- Ashcraft, A.B. and T. Schuermann (2008), "Understanding the securitization of subprime mortgage credit", *Federal Reserve Bank of New York Staff Reports*, No. 318, New York, Federal Reserve Bank of New York.
- Bello, O., R. Heresi and O. Zambrano (2008), "The present decade boom of commodity prices in historical perspective and its macroeconomic effects in Latin America", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), unpublished.
- Bernanke, B., M. Gertler and S. Gilchrist (1996), "The financial accelerator and the flight to quality", *Review of Economics and Statistics*, vol. 78, No. 1, Cambridge, Massachusetts, MIT Press.
- Blanchard, O. (2008), "The financial crisis: Initial conditions, basic mechanisms, and appropriate policies", *Munich Lecture*.
- Calvo, G., A. Izquierdo and L. Mejía (2008), "Systemic sudden stops: The relevance of balance-sheet effects and financial integration", *NBER Working Paper*, No. 14026, Cambridge, Massachusetts, National Bureau of Economic Research.
- Calvo, G., A. Izquierdo and E. Talvi (2006), "Phoenix miracles in emerging markets: recovering without credit from systemic financial crises", *NBER Working Paper*, No. 12101, Cambridge, Massachusetts, National Bureau of Economic Research.
- Calvo, G. and E. Mendoza (2000), "Capital-markets crises and economic collapse in emerging markets: An informational-frictions approach", *American Economic Review*, vol. 90, No. 2, Nashville, Tennessee, American Economic Association.
- (1996), "Reflections on Mexico's balance of payments crisis: a chronicle of death foretold", *Journal of International Economics*, vol. 41, No. 3-4, Amsterdam, Elsevier.
- Calvo, S. and C. Reinhart (1996), "Capital flows to Latin America: Is there evidence of contagion effects?", *Policy Research Working Paper Series*, No. 1619, Washington, D.C., World Bank.
- Calvo, G. and E. Talvi (2005), "Sudden stop, financial factors and economic collapse in Latin America: learning from Argentina and Chile", *NBER Working Paper*, No. 11153, Cambridge, Massachusetts, National Bureau of Economic Research.
- Cerra, V. and S. Chaman (2007), "Growth dynamics: the myth of economic recovery", *Working Paper*, No. 226, Basel, Bank for International Settlements.
- Chari, V. and P. Kehoe (2002), "On the robustness of herds", *Working Paper*, No. 622, Minneapolis, Federal Reserve Bank of Minneapolis.
- Chari, V.V., L.J. Christiano and P.J. Kehow (2008), "Facts and myths about the financial crisis of 2008", *Working Paper*, No. 666, Minneapolis, Federal Reserve Bank of Minneapolis.
- Cuddington, J. (1986), "Capital flight: estimation, issues, and explanations", *Princeton Studies in International Finance*, No. 58, Princeton, Princeton University.
- De Gregorio, J. and R. Valdés (1999), "Crisis transmission: evidence from the debt, tequila and Asian flu crises", *Working Paper*, Santiago, Chile, Central Bank of Chile.
- Dooley, M. (1986), "Country-specific risk premiums, capital flight and net investment income payments in selected developing countries" (DM/86/17), Washington, D.C., International Monetary Fund.
- ECLAC (Economic Commission for Latin America and the Caribbean) (2009), "La reacción de los gobiernos de las Américas frente a la crisis internacional: una presentación sintética de las medidas de política anunciadas hasta el 31 de marzo" (LC/L.3025), Santiago, Chile, March.
- Edwards, S. (2007), "Crisis and growth: a Latin American perspective", *NBER Working Paper*, No. 13019, Cambridge, Massachusetts, National Bureau of Economic Research.
- (1999), "Crisis prevention: lessons from Mexico and East Asia", *NBER Working Paper*, No. 7233, Cambridge, Massachusetts, National Bureau of Economic Research.
- Eichengreen, B. (2009), "How the subprime crisis went global: evidence from bank credit default swap spreads", *NBER Working Paper*, No. 14904, Cambridge, Massachusetts, National Bureau of Economic Research.
- Eichengreen, B., A. Rose and C. Wyplosz (1996), "Contagious currency crises", *NBER Working Paper*, No. 5681, Cambridge, Massachusetts, National Bureau of Economic Research.
- Evans, C. (2008), *Economic Update*, Chicago, Federal Reserve Bank of Chicago.
- Ffrench-Davis, R. (2009), "The global crisis, speculative capital and innovative financing for development", *CEPAL Review*, No. 97 (LC/G.2400), Santiago, Chile, April.
- Forbes, K. and R. Rigobon (2002), "No contagion, only interdependence: measuring stock market co-movements", *Journal of Finance*, vol. 57, No. 5, Berkeley, American Finance Association.
- Girouard, N. and S. Blondal (2001), "House prices and economic activity", *OECD Economics Department Working Papers*, No. 279, Paris, Organisation for Economic Co-operation and Development (OECD).
- Gorton, G.B. (2008), "The panic of 2007", *NBER Working Paper*, No. 14358, Cambridge, Massachusetts, National Bureau of Economic Research.
- Greenlaw, D. and others (2008), "Leveraged losses: lessons from the mortgage market meltdown", *U.S. Monetary Policy Forum Report*, No. 2, Chicago, U.S. Monetary Policy Forum.
- Hansen, J. (2003), "Financial cycles and bankruptcies in the Nordic countries", *Working Paper Series*, No. 149, Stockholm, Central Bank of Sweden.
- Hatzius, J. (2008), "Beyond leveraged losses: the balance sheet effects of the home price downturn", *Brookings Papers on Economic Activity*, Washington, D.C., Brookings Institution Press.

- Haughey, J. (2008), "How did \$600-800 billion of US mortgage defaults cause a worldwide economic crisis?", Market Insights [on line] <http://www.reedconstructiondata.com/jim-haughey/post/how-did-600-800-billion-of-us-mortgage-defaults-cause-a-worldwide-economic/>
- Herring, R.J. and S. Wachter (1999), "Real estate booms and banking busts: An international perspective", *Center for Financial Institutions Working Papers*, No. 99-27, Philadelphia, Wharton School Center for Financial Institutions.
- Honda, E. (2003), "Financial deregulation in Japan", *Japan and the World Economy*, vol. 15, No. 1, Amsterdam, Elsevier.
- IMF (International Monetary Fund) (2009), *World Economic Outlook. Crisis and Recovery*, Washington, D.C.
- Ivashina, V. and D. Scharfstein (2008), "Bank Lending during the financial crisis of 2008", unpublished.
- Izquierdo, A. and E. Talvi (2008), *All That Glitters May Not Be Gold: Assessing Latin America's Recent Macroeconomic Performance*, Washington, D.C., Inter-American Development Bank.
- Kaminsky, G. and C. Reinhart (2000), "On crisis, contagion and confusion", *Journal of International Economics*, vol. 51, No. 1, Amsterdam, Elsevier.
- Kaminsky, G., C. Reinhart and C. Végh (2002), "Two hundred years of contagion", *MPRA Working Paper*, No. 13229, Munich, University Library of Munich.
- Kennedy, N. and P. Andersen (1994), "Household saving and real house prices: an international perspective", *BIS Working Papers*, No. 20, Basel, Bank for International Settlements.
- Kwan, S. (2009), "Behavior of Libor in the current financial crisis", *FRBSF Economic Letter*, No. 2009-04, San Francisco, Federal Reserve Bank of San Francisco.
- Laeven, L. and F. Valencia (2008), "Systemic banking crises: a new database", *IMF Working Paper*, No. 08/224, Washington, D.C., International Monetary Fund.
- Lamfalussy, A. (2000), *Financial Crisis in Emerging Markets*, New Haven, Yale University Press.
- Loser, C.M. (2009), "Global Financial Turmoil And Emerging Market Economies: Major Contagion and a Shocking Loss of Wealth?", Manila, Asian Development Bank.
- Orlowski, L. (2008), "Stages of the 2007/2008 global financial crisis: Is there a wandering asset-price bubble", *MPRA Working Paper*, No. 12696, Munich, University Library of Munich.
- Machinea, J. (2009), "The international financial crisis: its nature and the economic policy challenges", *CEPAL Review*, No. 97 (LC/G.2400), Santiago, Chile, April.
- Mishkin, F.S. (2008), "Monetary Policy, Flexibility, Risk Management, and Financial Disruptions", presentation at the Federal Reserve Bank of New York, 11 January.
- Nadauld, T.D. and Sh. Sherlund (2008), "The Role of the Securitization Process in the Expansion of Subprime Credit", Board of Governors of the System/Ohio State University, September, unpublished.
- Ocampo, J. (2009), "The impact of the global financial crisis on Latin America", *CEPAL Review*, No. 97 (LC/G.2400), Santiago, Chile, April.
- Pérez-Caldentey, E., D. Titelman and R. Pineda (2009), "The current global financial crisis: What was really 'purely prime'?", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), April, unpublished.
- Pineda, R. (1998), "Capital flight and changes in the domestic risk: the role of agents' preferences", Michigan, Michigan State University, unpublished.
- Pineda, R., E. Pérez Caldentey and D. Titelman (2009), "The current financial crisis: old wine in new goatskins or is this time different for Latin America?", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 20 March, unpublished.
- Quigley, J.M. (1999), "Real estate and the Asian crisis", *Berkeley Program on Housing and Urban Policy Working Paper Series*, No. 1011, Berkeley, Berkeley Program on Housing and Urban Policy.
- Reinhart, C. and K. Rogoff (2008a), "This time is different: a panoramic view of eight centuries of financial crises", *NBER Working Paper*, No. 13882, Cambridge, Massachusetts, National Bureau of Economic Research.
- \_\_\_\_\_ (2008b), "The aftermath of financial crises", *NBER Working Paper*, No. 14656, Cambridge, Massachusetts, National Bureau of Economic Research.
- Rigobon, R. (2001), "Contagion: how to measure it?", *NBER Working Paper*, No. 8118, Cambridge, Massachusetts, National Bureau of Economic Research.
- RiskGlossary [on line] [www. http://www.riskglossary.com](http://www.riskglossary.com)
- Senhadji, A. and Ch. Collins (2002), "Lending booms, real estate bubbles and the Asian crisis", *IMF Working Paper*, No. WP/02/20, Washington, D.C., International Monetary Fund.
- Titelman, D., E. Pérez-Caldentey and R. Minzer (2008), "Comparación de la dinámica e impactos de los choques financieros y de términos de intercambio en América Latina en el período 1980-2006", *Financiamiento del desarrollo series*, No. 203 (LC/L.2907-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC). United Nations publication, Sales No. S.08.II.G.43.
- WTO (World Trade Organization) (2009), "WTO: 2009 Press Releases", PRESS/554, 23 March [on line] [http://www.wto.org/english/news\\_e/pres09\\_e/pr554\\_e.h](http://www.wto.org/english/news_e/pres09_e/pr554_e.h)