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Credit bubble and stagnation in Colombia, 1990-2001

Fernando Tenjo Galarza
Enrique López Enciso

Summary

This paper explores the dynamics of the credit-crunch affecting Colombia during the second half of the 1990s. Its main objectives are to present statistical evidence regarding the phenomenon in question, to ascertain rhythms deriving from it and some working hypotheses shedding some light on determinants of Colombian credit market behaviour. The study distinguishes between exogenous and endogenous factors explaining this behaviour. External capital flows play a key role in the former as their size and direction highly influence internal credit conditions and economic activity. However, changes in these flows are channelled through a domestic financial system that amplifies their negative effect on the economy, thus playing a procedural-cyclical role.

Keywords: credit markets, credit cycle, financial structure, flow of funds.
JEL Classification: E4, G1, G3.

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1. Introduction

The virtual paralysis of the credit market represents one of the Colombian economy's most critical problems during recent years because of its negative impact on economic growth. It has also revealed deep disequilibria in and fracturing of the economy's various sectors' financial settings.

The idea that the slow expansion of credit to the private sector and its negative growth rates during the last three years has been associated with Colombia's 1999 economic crisis and the events leading up to it has enjoyed increasing acceptance of late. In fact, many emerging markets have experienced like situations. In most cases the pattern has been similar; the economies underwent structural reforms and faced international capital flow cycles which were followed by severe economic difficulties in the presence of exchange or bank crises and, in some cases, both –Furman and Stiglitz [1998], de la Torre *et al*. [2002], Braun and Hausmann [2002], Tornell and Westermann [2003].

In the case of Colombia, which followed the same sequence of events, the crisis' primary characteristics have been its duration and the severity of those financial imbalances accompanying it. The consequences of both phenomena still persist and have influenced the economy's recent performance and both public and private sectors' financial patterns. They have also sparked considerable debate over the policy alternatives for dealing with the problem, the vigour and quality of the recovery and the extent to which supply and demand factors have contributed towards explaining stagnation of credit flows to the private sector.

This paper tries to interpret the behaviour of credit in the Colombian economy over the last few years, venturing some considerations regarding the prospects for a mid-term solution to the problem. The different stages of the credit cycle, including a boom period, are identified with this in mind, as are their causes and effect on both the financial sector and the economy as a whole.

The paper suggests that the scant flow of credit to the private sector in Colombia reflects economic agents' adjustment to the crisis in production and the financial

system towards the end of the last century. In turn, the nature of this response is explained in terms of how the economy assimilated the structural reforms introduced at the beginning of the 1990s and the inflows of external capital that followed. It should be emphasised that the analysis presented here limits its scope to formulating hypotheses consistent with the facts without engaging in their econometric verification. The authors leave that exercise for future research.

This article is organised into eight sections, the first being the present introduction. Section 2 offers a summary of the conceptual approach that guided the paper. Section 3 graphically illustrates the pertinent data and suggests a periodisation of the credit "boom" and "crunch", as well as a brief review of the main lines of argument attempting to explain the problem. Section 4 offers another account of the same problem, combining elements of the conceptual framework presented in Section 2 with an interpretation of those structural reform processes instituted in Colombia at the start of the 1990s. This interpretation highlights the possible links between financial liberalisation and instability and the role of bank regulation. Section 5 presents an analysis of the credit cycle in the 1990s, emphasising the dynamics of external capital flows and the effects of liberalisation on the level of financial intermediation in the economy. It also underscores the coincidence between these events and a spending bubble and constructs a scenario regarding the distinctive features of economic performance during each the credit cycle's stage. This scenario is analysed in Section 6 from the private sector standpoint by identifying changes in the financial behaviour of both households and firms responding to reforms in the early 1990s and effects of the crisis at the end of that decade. A similar exercise points out its implications for credit supply in Section 7 from the financial system perspective. Several conclusions and their implications for the credit market and the necessary conditions for its recovery are proposed in Section 8.

2. The basic conceptual approach

The episodes of financial crisis and recession in East-Asia and Latin-American countries during the second half of the 1990s offer a number of important lessons for Colombia. By the same token, developments in economic thinking resulting from these episodes pose interesting analytical questions for examining the Colombian economy during the last fifteen years.

In particular, there has been growing support for the idea that so-called "first" and "second generation" models do not fully explain what happened in East-Asia. Describing the crisis as a product of the fiscal deficit, as does the first type of model, or as the result of tension between the fixed exchange rate and the desire for an expansionary monetary policy, as per second-generation models, does not appear applicable in the Asian case [Krugman 1999].

Many analysts agree that recent crises in the emerging countries have novel features and that a new type of model must be proposed if they are to be fully described and understood[1]. So-called "third generation" models maintain that the crux of the problem lies in the operation of international and local financial systems, which are plagued by imperfections derived from asymmetrical information, moral hazard, adverse selection, herd behaviour, and in the difficulty of designing and applying an adequate system of prudential regulation [Pereira 2001].

Three complementary aspects from such recent models are particularly useful for the purposes of this study. The problems generated by asymmetric information and inadequate regulation are closely linked to the way countries implemented structural reforms that included opening up markets, privatising and liberalising financial markets and a freer flow of international capital. These problems have made emerging economies vulnerable to crises and help explain the apparent tie between reforms of this type and subsequent episodes of financial instability, credit bubbles and severe fluctuations in asset prices –Tornell [2001], Gourinchas and Jeanne [2002].

Open-economy models *à la* Bernanke-Gertler help in understanding the relationship between the way various agents behave and the performance of the economy as a whole and, consequently, how financial instability and cycles are generated. These models are based on the "credit channel" and "financial accelerator" concepts, as being those elements transmitting external and policy shocks to the economy through changes in the various agents' balance sheets[2]. Capital flows to the emerging countries, one of the most notable features of the world economy in the 1990s, have been amongst the most significant of these shocks.

Calvo *et al*. [2002] and Calvo [2001] have analysed the effects of changes in international capital flows on emerging economies. They have underscored their

[1] For example, see the recent work of Dornbusch [2001].

[2] Aghion *et al*. [2000a, 2000b], Tornell [2001], Aghion *et al*. [2001].

exogenous nature and the possibility that unexpected interruptions –"sudden stops"– may cause substantial movements in real exchange rates and problems of fiscal sustainability in relatively closed and highly indebted economies with dollarised liabilities.

Whilst this article addresses these developments through the so-called "third generation" models, it also stresses the importance of making an analytical distinction between exogenous and endogenous factors. External capital flows are the most important exogenous factor, as their size and direction are essentially determined by international financial market volatility. However, changes in these variables can be facilitated by each economy's internal conditions (their balance sheet at sector and aggregate levels, the degree of market and national economic policy development). These determine and are determined by each economy's endogenous processes. The latter, in turn, condition the way economies absorb exogenous shocks, including changes in external capital flows.

3. Credit stagnation in Colombia and its interpretations

3.1 Credit stagnation

During the 1990s and the first years of the current decade, the Colombian economy registered a complete credit cycle. The portfolio grew at increasingly higher rates from mid-1992 until late 1993, when it reached a peak. Growth slowed at that time, with a brief interruption between late 1996 and late 1997, before falling definitely and registering negative growth from mid-1998 to date (Figure 1).

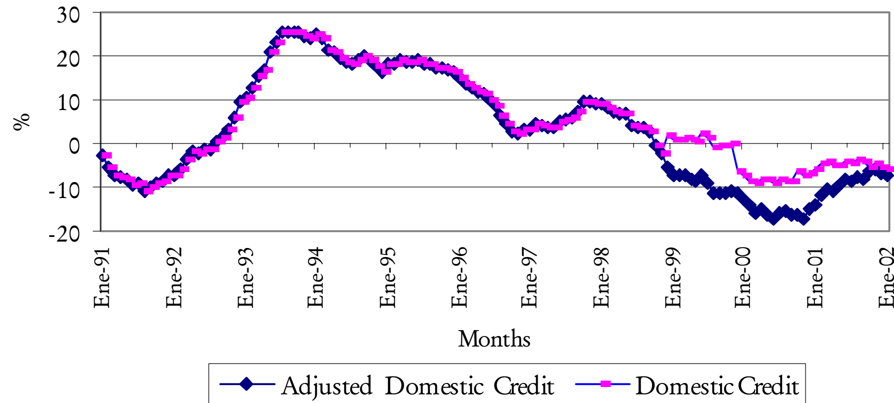
The decline in financial sector stock of credit in real terms occurred within the context of a monetary policy that has allowed for broad liquidity and successive reductions in interest rates, particularly since early 2001[3].

Banco de República (Colombia's central bank) intervention rates facilitated the fall in overnight rates and indirectly contributed to the decline in both deposit and lending rates for the different types of credit –consumer, commercial, preferred– as well as those on public debt securities or treasuries (TES) (Figure 2)[4].

[3] See the Banco de la República [2002a].

[4] This type of relationship was explored formally by Julio, J.M. [2001].

Figure 1
Domestic credit in the financial system, real annual growth rate



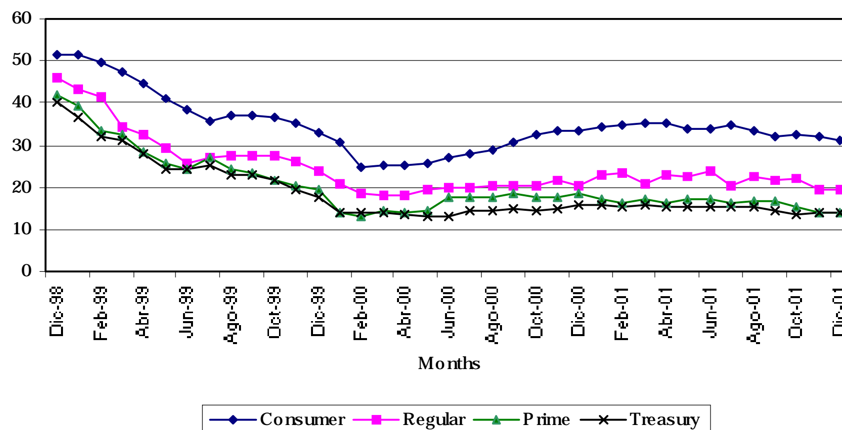
Source: Banco de la República. Adjusted credit stock is net of loans taken out of banks' balance sheets through securitisation and other means.

3.2 Explanations of credit stagnation

Most researchers dealing with credit stagnation in Colombia lean towards some version of the "credit channel" and "financial accelerator" models discussed in Section 2. An initial group of studies has analysed the factors that could have led financial intermediaries to reduce their credit supply. These include bank solvency ratios, the decline in portfolio quality and reduction in financial institution profits with respect to their equity for Echeverry and Salazar [1999]. The *La Revista del Banco de la República* editorial[5] suggested that the backward shift in credit supply was due to the increased risk posed by insolvent debtors, the decline in bank equity and the fall in prices of loan collateral. Arias *et al.* [1999] hold that the reduction in the public making deposits helped explain the trend in credit supply. This hypothesis was econometrically assessed by Carrasquilla *et al.* [2000] who concluded that the trend in deposits does influence the composition of assets in the financial system and that, between January 1995 and September 1999, its effect outweighed the impact of the deterioration in credit quality indicators. Finally, Arias [2001] underscored the negative influence of some policies adopted in 1998 and 1999 (particularly changes in regulations and introduction of the tax on financial transactions) on the system's productivity and thus on credit supply.

[5] See Banco de la República [2001].

Figure 2
Annual lending rate by type of credit (%)



Source: Banco de la República

Barajas *et al.* [2001] maintain that any study of credit stagnation must simultaneously consider supply and demand factors. The authors present a disequilibrium model allowing them to estimate supply and demand simultaneously, using the maximum likelihood method. They found that restrictions on the supply of funds available for lending explained the evolution of credit for most of the period February 1999 to February 2001.

More recent studies have analysed credit stagnation in several Latin-American countries, considering that the trend of bank credit growth changed dramatically throughout the region following the Mexican, Asian and Russian crises. De la Torre *et al.* [2002] examined credit fluctuations within the region, verifying the existence of changes in credit stock that are common to most of the countries. They also found that reductions of credit in the region have been determined by supply factors, with the exception of Chile.

Barajas and Steiner [2002] replicated the model estimated by Barajas *et al.* [2001] introducing some changes to its specification. They also included two additional variables in the supply function: the percentage of non-performing loans and provisions as a percentage of non-performing loans. The first variable captures the effect of banks' perception of credit risk regarding their lending decisions; the second more directly identifies the extent to which provisions restrict the availability

of lending funds. These variables proved to be important for the three countries studied (Colombia, Mexico and Peru). Unlike previous studies, the results show the importance of credit demand as an explanation for the decline in real credit for the private sector in Colombia.

Braun and Hausmann [2002] conducted a comparative study of credit crunch episodes from 1982-2000, deriving a set of conclusions having considerable importance for the purposes of the present work. Firstly, the authors found a greater incidence of credit crunches in Latin-America than the rest of world, resulting from region-specific characteristics such as greater importance of trade shock terms, capital flow reversals and low financial depth. Furthermore, the region's situation is made worse by less developed and internationalised financial markets and poor creditor rights protection. Secondly, credit crunches in the region are most likely triggered by declines in the supply of loanable funds and are closely related to trade shock terms. Thirdly, the 1999-2000 credit crunch affected a wide range of countries in the region (including Colombia) and had the greatest impact on them since the 1982 crunch.

4. A complementary explanation

The present study is part of a search for an explanation for the recent trend in the Colombian credit market and, therefore, complements those summarised above. This explanation is based on the presence of a credit-boom during the 1990s and explores the close relationship between this boom and the credit crunch that followed it.

4.1 Financial liberalisation and opening up the economy in the early 1990s

Colombia, like many other countries, instituted a series of reforms at the onset of the 1990s designed to make markets more competitive and give them a broader role in allocating productive resources. The idea was to increase economic efficiency and growth. These reforms included trade and foreign exchange liberalisation and financial system reform aimed at eliminating financial repression.

At the start of the 1990s the Colombian financial sector was small, segmented and concentrated. An important portion of banking sector assets (21%) belonged to the public sector. Reserve requirements exceeded 40% of total deposits and

the interest rate margin was 500 base points above that of developed countries. In a context marked by high inflation and subsidised credit, most banking sector loans had maturities of one year or less; with long-term credit existing only in the savings and loan system for financing housing [Uribe and Vargas 2002].

The reforms[6] redefined the financial system's role and structure. These laws made it simpler to enter and exit the business and sought to reduce specialisation, thus favouring a multi-banking business model, and included a more adequate scheme of supervision and prudential regulation. Changes in reserve requirements, mandatory investments, interest rates, subsidised credit and limits on foreign investment in the financial sector were also introduced [Uribe and Vargas 2002].

These measures were significant and extremely important for the Colombian economy, as illustrated by Arbeláez and Echavarría's [2001] survey of the literature on financial liberalisation in Colombia. It concludes that the process in Colombia was relatively quick and thorough compared to that of other countries with a similar level of development.

4.2 A policy option: financial and exchange liberalisation, regulation and risk management in imperfect markets

The reform of the Colombian financial system coincided with changes in international markets giving rise to major capital flows towards emerging markets; Colombia was one of these. A closer relationship was established between the Colombian economy and the rest of the world in a policy scenario that hoped to encourage better resource allocation, increased investment and higher economic growth. However, this scenario also involved certain risks. In hindsight, and in the light of many countries' experience, financial liberalisation added to the economy's vulnerability and made markets more volatile, increasing the risks of destabilising speculation and financial and exchange crises[7].

[6] Implemented primarily by Law 45 in 1990, Law 9 in 1991 and Law 35 in 1993.

[7] The following is Kahn's summary of the conclusions of a seminar on global economic integration organised recently in Kansas City by the Federal Reserve Bank. "The increasingly integrated global economy presents policymakers with both opportunities and challenges. Global economic integration is widely thought to improve the allocation of resources, promote technology transfer and enhance living standards. But, at the same time, economic integration has frequently been blamed for growing trade imbalances, increased financial market volatility and less effective domestic macroeconomic policies" [Kahn 2001: xvii].

Liberalisation posed a crucial dilemma for the countries that adopted it. They had to choose, on the one hand, between applying controls that made the economy less vulnerable and giving up some of the benefits of opening-up and globalisation and, on the other, submitting to the risks of instability and international market volatility with the idea of taking full advantage of the benefits these policies have to offer[8]. For the most part, the way out of this dilemma lies not so much in the search for an ideal combination of markets and controls, but in the design and practical application of an adequate scheme for prudential regulation, supplemented with monetary, fiscal and exchange policy measures to prevent crises from occurring[9].

The required regulatory framework evolves from the principle of reducing and managing the risks taken by economic agents [Mishkin 2000]. Financial liberalisation transforms the financial positions and strategies of economic agents. They can diversify their portfolios and assume new kinds of risk by taking advantage of greater access to markets and investment opportunities (financial deepening). The challenge is particularly difficult for emerging countries, as their problems with imperfect information and incomplete markets are more serious and they have a more incipient risk management tradition.

Regulatory framework quality and effectiveness are essential factors in determining which way the scale will tip for the many countries that chose to give the markets a greater role in allocating their resources[10]. Naturally, a second element is the set of external and policy conditions which can lead, independently of the domestic

[8] As so aptly expressed by Krugman: "growing potential gains from trade and foreign investment make it increasingly expensive for countries to maintain controls that might interfere with flows of goods and services or deter multinational enterprise. But removing these controls makes it more likely that countries will develop the financial vulnerabilities that make financial crises possible" [Krugman 2001: 100].

[9] Stiglitz [2001] maintains that nearly 100 countries have experienced a severe exchange or financial crisis during the last 25 years. He also says there is growing consensus that some of the explanation for this lies with financial institution weakness, partially resulting from inadequate supervision. According to Aisenman [2002], countries instituting reforms face a trade-off between the adverse mid-term effects and the positive long-term impact of such measures. He also says the challenge is to define how financial openness can be supplemented with policies improving this international-temporal conflict.

[10] In an assessment of studies on financial crises in the emerging countries, Aisenman [2002] underscores the close relationship between financial liberalisation and crisis and the positive role an adequate framework for prudential regulation and supervision can play in toning down this relationship.

regulatory framework, to international capital inflow instability and eventually to capital flight.

This link between financial liberalisation, capital flows and the possibility of crisis, and economic policy and those regulatory challenges it implies for individual countries is useful for understanding the course of the Colombian economy since the early 1990s, and particularly the causes of credit stagnation in recent years.

Financial and exchange liberalisation, together with external capital inflows fed the credit channel and the financial multiplier, increasing the magnitude of financial assets in relation to the size of GDP and allowing a rapid credit supply growth. National and foreign investors, as well as financial institutions, became less risk-averse and assumed positions which, given the prevailing regulatory framework, increased the incidence of adverse selection and moral hazard. Given these circumstances, mistakes in project assessment were common and made worse by an inflation of asset prices leading to disproportionate increases in the value of loan collateral.

The consolidation of the multi-banking business model also caused errors in credit risk assessment. Financial reform and the existence, during the boom, of a large number of government-owned banks were involved in this. In the first case, the operating structure created as a result of the reform was costly and ineffective for the sort of risk assessment required to evaluate the projects of customers who approached new banks or traditional financial institutions operating in unfamiliar terrain. The government-owned banking system was given to obeying political criteria rather than technical standards when selecting projects for financing [Clavijo 2000].

Another element common to countries like Colombia was that a form of regulation inspired by the 1988 Basel Agreement, based on capital requirements, had been used since the 1990s. It is a well-known fact that the two overriding objectives of that agreement were to ensure an adequate level of capital in the international banking system and to improve its competitiveness[11].

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[11] Some authors claim that regulatory schemes centred virtually on a single instrument –namely, capital requirements– can become inefficient and counterproductive as tools for risk management in developing countries [Stiglitz 1999].

Although evaluations show that the Basel Agreement was successful in accomplishing both these objectives, its limitations respecting other aspects were particularly evident and posed the need to look for new regulatory formulae. The idea was to go beyond the "asset basket" approach, allowing banks to bypass regulation and increase their risk without increasing their capital by replacing low-risk assets with high-risk ones belonging to the same basket of assets. While the 1988 agreement focused on capital regulation, the new approach is centred on three, mutually-reinforcing elements: minimum capital requirements, revision of the supervision process and market discipline [Stolz 2001].

5. The Colombian credit-cycle in the 1990s

Section 4 provides the framework for a better understanding of the previous decade's credit-cycle. The hypothesis behind the explanation for this phenomenon is that credit constitutes the basic link between international capital flows and aggregate economic activity. This section is a tentative attempt at developing this hypothesis, putting together some statistical evidence but leaving its complete development and formal testing for further research.

This would require drawing on, and complementing, recent literature on the credit channel, the dynamics of capital flows and the impact of capital reversals on economic performance in emerging economies. Along these lines, the hypothesis would split the relationship between capital flows and GDP growth in two: one from capital flows to credit and the other from the dynamics of credit markets to that of GDP growth. Although no attempt is made here to define the causality that underlies these two relationships, a test was conducted for the period 1970-1999 of whether there was correlation between capital flows and credit to the private sector on the one hand and between the latter and the economy's performance –the gap between current and potential GDP– on the other. The positive results derived from this exercise provide the first solid ground for the hypothesis that credit constitutes the link between capital flows and aggregate economic activity.

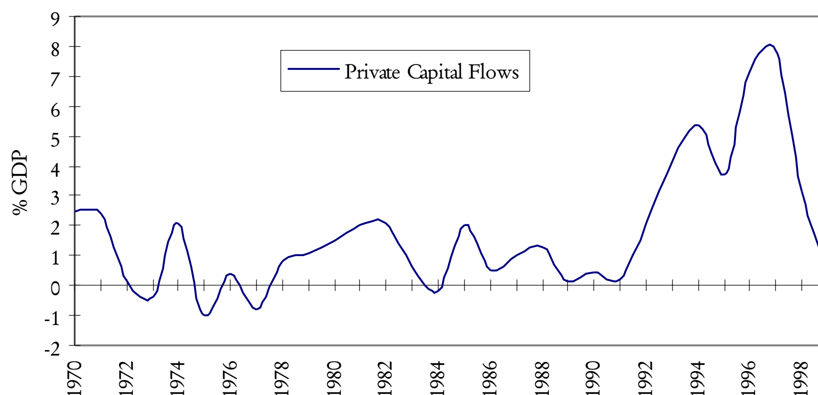
Central elements for formulating this hypothesis are derived from Section 4 above. The opening-up of the Colombian economy and the strategy of financial liberalisation transformed the way the economy worked and the scope of economic policy. Capital flowed into the country, was monetised into pesos, and the policy stance of monetary authorities allowed them to have a direct impact

on economic activity through a credit channel enhanced as a result of a more market-orientated financial system. Since this legal and economic scenario did not exist before the 1990s, the period marked a structural change in the relationship between real and financial variables in Colombia.

5.1 The magnitude of capital flows

Colombia has received large capital flows from abroad during the past decade (Figure 3). As noted earlier, it was not an isolated case. The same situation was observed in almost every emerging market, due to the financial integration of the world economy at the time. This may therefore be considered a phenomenon exogenous to those countries which were receiving these flows (Figure 4).

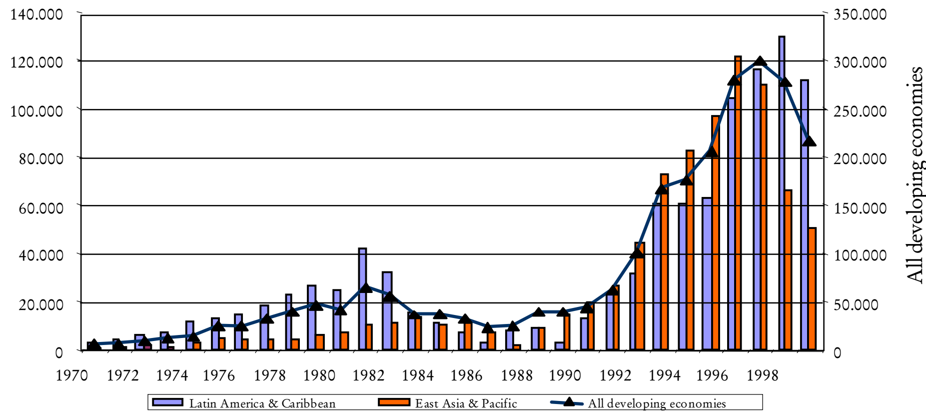
Figure 3
Private capital flows



Source: Banco de la República, own estimates.

In all cases, what happened during the 1990s can be regarded as being a complete capital flow cycle, one that was far more pronounced and larger that those experienced in the 1970s and 1980s. Capital flows to emerging market economies rose sharply from the 1990s, except for a brief interruption in 1995 due to the Mexican crisis and the so-called Tequila effect, then dropped abruptly in 1997 and 1998 following the Asian and Russian crises. In the Colombian case, they increased from almost nothing in 1991 to almost 7% of GDP in 1996, before falling to just 1% of GDP in 1999. This illustrates the risks deriving from the financial opening-up and liberalisation mentioned above.

Figure 4
Capital flows to developing economies (US$ million)



Source: ECLAC

Nevertheless, supply factors associated with changes in international markets were not the only circumstances explaining the influx of foreign capital into Colombia. One of the reasons given for financial liberalisation and the opening-up of the economy was to broaden sources of financing productive investment and make them less expensive. Hence, the behaviour of capital flows in the early 1990s was also due to the private sector's need for financing and to that of the government, although less so. The current account was financed through private borrowing and foreign investment until 1997. Although net foreign investment flows remained positive in 1998 and 1999, it was the public sector that received a large influx of foreign credit [Villar and Rincón 2000].

5.2 Capital flows and the credit cycle in Colombia

There is considerable evidence suggesting that capital flows into emerging economies during the period in question fed and, in some cases, generated a credit boom. This conclusion was reached by Hernández and Landerretche [2000], who used the rate of growth of credit to the private sector to identify booms, and by Gourinchas *et al.* [2000], whose method for defining episodes of this type centres on the level of credit and its growth[12].

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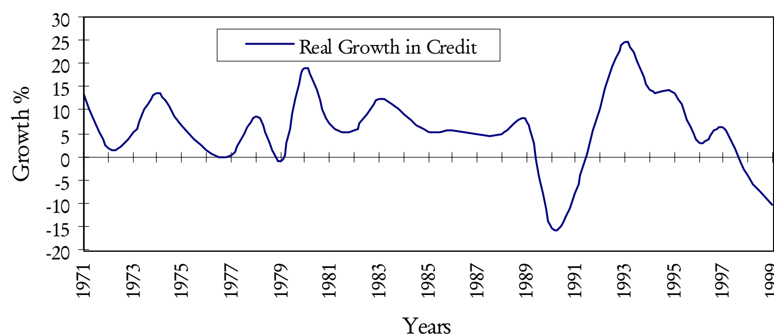
[12] In a recent study based on these criteria, Gourinchas *et al.* [2000], identified 63 credit booms during the 1960-1996 period in a sample of 91 countries, Colombia included.

When applied to data on Colombia, these two criteria suggest that the country in fact experienced a credit boom in the last decade. This may observed in Figures 5 and 6; the first includes information on real credit growth rates and the second the nominal value of the credit stock as a percentage of GDP[13]. Based on the information presented in Figure 6, the conclusion is that the credit boom occurred between 1991 and 1997.

These studies also found two important coincidences in the countries in question. Whereas Gourinchas *et al.* [2000] showed a major coincidence in the years when the different countries experienced credit booms, De la Torre *et al.* [2002], found a considerable degree of coincidence in time between credit and external capital flow cycles in Latin-America.

Figure 5
Real growth in credit to the private sector



Source: Banco de la República, own estimates.

Figure 7 provides important information regarding this relationship in the Colombian case from which it can be argued that, historically speaking, the early 1990s marked a threshold in the relationship between the volume of credit to the private sector and capital inflows to the economy.

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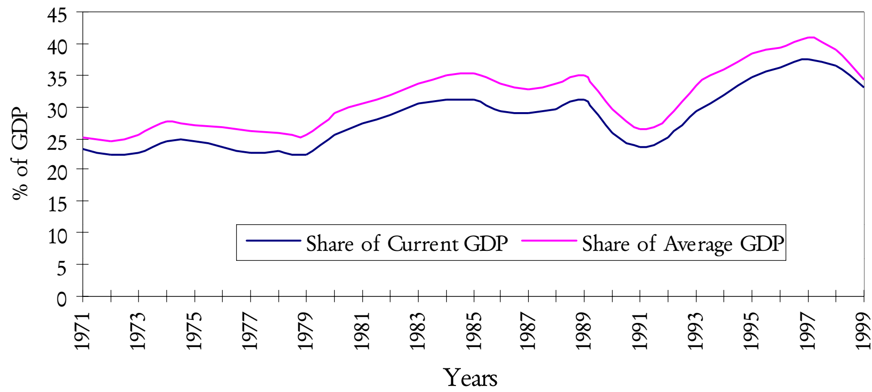
[13] Figure 6 shows two measurements of the nominal value of the credit portfolio as a percentage of GDP. One considers the fact that credit is a stock variable and GDP a flow variable. Accordingly, an average of the product measured in two consecutive periods is constructed to determine the relationship. The other measurement is simply constructed by using current GDP as a denominator. The trend is similar in both cases and the difference in the curves is only a question of absolute values. The first measurement allows for comparing the results presented here with those of Gourinchas *et al.* [2000].

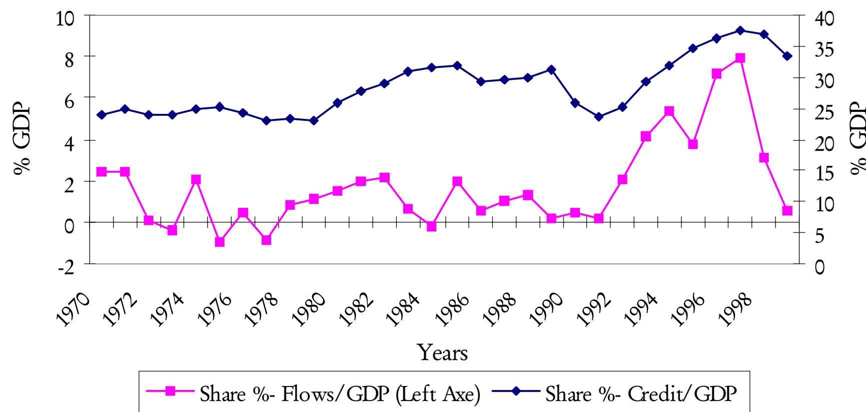
Figure 6
Credit to the private sector (% of GDP)



Source: Banco de la República, own estimates.

Figure 7 indicates that the movement of these two variables became closer after the liberalisation policies of the early 1990s, leading to the economy's greater integration into international capital markets. These reforms also meant dismantling exchange control regulations which had been in place since 1967. These regulations enabled the government to conduct monetary policy with a considerable degree of independence from the evolution of external accounts. These elements are behind the two clearly identified patterns of the relationship between capital flows and credit observed in Figure 7.

Figure 7
Credite to the private sector and capital flows



Source: Banco de la República, own estimates.

The importance of the private sector as receiving international capital flows grew in the early 1990s thanks to more flexible foreign investment and external borrowing regimes, privatisation and concession programmes, the sale of public financial institutions and development of joint infrastructure projects between public institutions and foreign investors, particularly in the oil and communication sectors [Uribe 1995]. Inflows of external capital also took the form of growing financial sector foreign indebtedness and, through it, that of the non-financial private sector too. These flows of capital are closely linked to the strong appreciation of the peso in the first half of the decade. Because of this and other destabilising effects of capital flows on the macro-economy, the monetary authority introduced a non-remunerated reserve requirement on these inflows in 1993 with further modifications thereafter[14].

There is evidence consistent with the hypothesis that foreign capital flows into Colombia made a decisive contribution to the credit boom in the 1990s[15]. This interpretation generally coincides with that of Hernández and Landerretche [2000], who suggest that, regardless of whatever policies each government may adopt, an increase of capital flows into developing economies is more likely than not to result in a credit boom.

5.3 The credit cycle and economic performance

The relationship between financial liberalisation at the beginning of the 1990s, external capital flows and the cycle of credit to the private sector underlies the analysis of certain aspects of Colombia's recent economic performance that are particularly relevant.

There is a positive relationship between the amount of credit made available to the private sector and the level of production as measured by the gap between current and potential GDP. This relationship did not exist before 1990 (Figure 8)[16]. Higher levels of credit are now associated with a growing positive gap between

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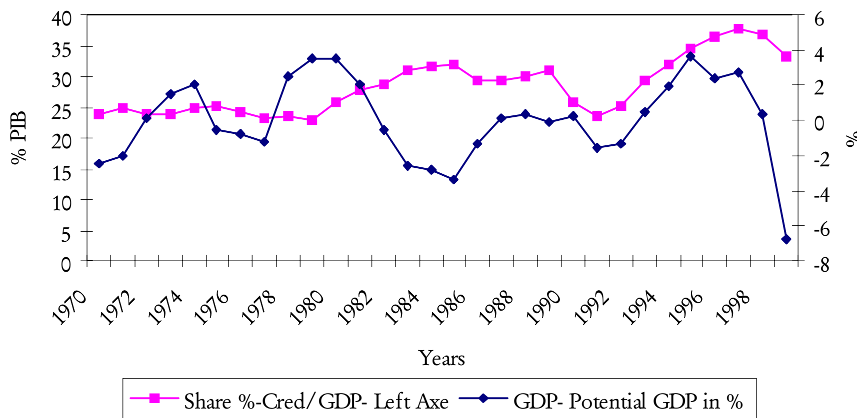
[14] For a detailed explanation of the functioning and impact of this mechanism in both Chile and Colombia see Ffrench-Davis and Villar [2003].

[15] In more formal terms, a cross-correlation was also established between credit to the private sector/GDP and capital flows/GDP. This empirical evidence shows that Colombia as a recipient country of foreign capital effectively experienced a credit boom. The correlation is positive and contemporary. However, capital flows in the preceding year are also important. See Appendix 1.

[16] It is thus not captured by the cross-correlation exercise presented in Appendix 1.

GDP and its potential, as occurred during the credit boom between 1993 and 1997. In 1998, when there was a drop in the share of credit to the private sector in GDP, the gap between real and potential GDP turned negative.

Figure 8
The GDP gap and credit

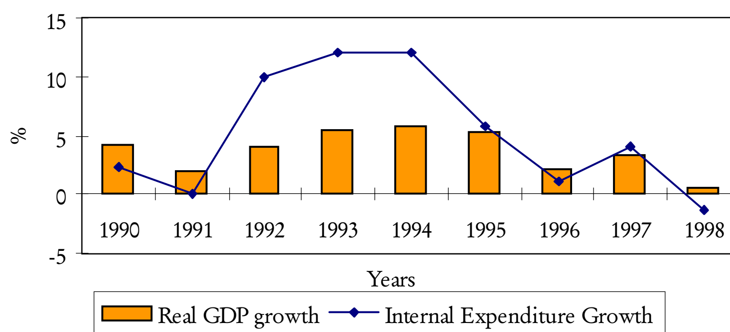


Source: Own estimates

A question that must be addressed concerns the role of external capital flows in this relationship. As noted in the previous section, these tended to move in the same direction as changes in the volume of credit extended to the private sector during the 1990s. The scope of our analysis does not lead to an entirely satisfactory answer. Although the exogenous and endogenous elements of the credit cycle can be identified analytically, and external capital flows are one of the exogenous elements, it is difficult to fully separate the effects of each group of variables as all of them affect the economy and are amplified through the same “credit channel” and “financial accelerator” mechanisms. The exception occurred in 1998 and 1999 when there was an abrupt reversal of the direction of capital flows in Colombia’s balance of payments. The recessive effects of this reversal can be quite clearly identified.

A second element related to the credit cycle in the 1990s was the occurrence of a “spending bubble”. This is shown in Figure 9, which compares the annual growth in domestic expenditure and GDP, both expressed in real terms. As illustrated, the bubble experienced a period of expansion between 1991 and 1994. In 1994, it began to “wind down” and ended with negative growth in internal expenditure during 1998.

Figure 9
Real growth of GDP and internal expenditure (%)



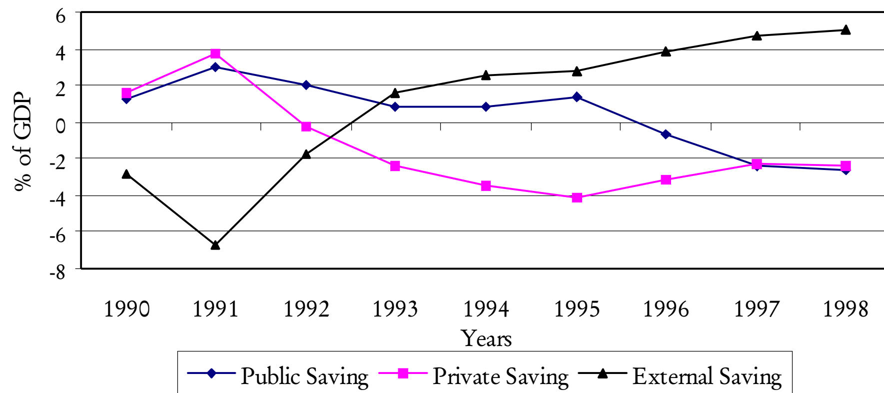
Source: DANE. Own estimations.

Figure 10 leads to some interesting conclusions with respect to the nature of this spending bubble and its coincidence with the credit boom. The bubble was fed by the increase in both private and public expenditure. The savings-investment deficit in the private sector increased as the volume of credit and the spending bubble expanded. Although the public balance did not turn negative until 1997, government spending (financed by higher taxes and privatisation) had been rising sharply since 1991[17]. The savings-investment deficit in the private sector began to shrink in 1995, coinciding in time with a lower growth rate for real total domestic spending and the onset of a downturn in the availability of credit to the private sector. The savings-investment surplus in the public sector disappeared in 1996 and, as of 1997, both the public and private sectors registered deficits. The economy required increased external savings, leading to a deficit in the current account of the balance of payments. The extent of this deficit in 1997 and 1998 (close to 6% of GDP) helps to explain the reversal of the direction of international capital flows during 1998-1999 and, hence, the subsequent problems observed in the credit market.

More details regarding the nature of the private sector's role in the spending bubble allow us to identify a third aspect of the credit cycle analysed in this study (Figures 11, 12 and 13). While the upward phase of the credit cycle was closely related to growth in private investment by households and businesses, the downswing was associated with sharp reductions in investment and household consumption. More importantly, the development in household spending seems to explain the credit cycle profile, peaking in mid-decade and sharply declining

thereafter. Nevertheless, there was a tendency for household consumption to decline as a percentage of GDP throughout the cycle, particularly during its downswing.

Figure 10
Macroeconomic balance



Sourde: DANE. Own estimations.

To understand the evolution in investment by households, it must be recalled that home purchases are a major item in this variable and that the prices of housing and mortgage debt service weigh decisively in household balance sheets and purchasing power. The close connection between the credit cycle and the housing market supports existing evidence for Colombia and other countries regarding the tendency for credit cycles and spending bubbles to be linked to markets for non-tradeable goods, where price increases and declines have an enormous impact on the credit cycle.

In effect, 1995 marked the end of an upward trend in housing prices and the start of a decline in loans. Because of their negative effect on investment and consumption by households, these events help to explain why the credit boom and the spending bubble began to unwind.

[17] In effect, central government spending as a percentage of GDP doubled in the 1990s (total payments by the central government increased from 9.4% of GDP in 1990 to 20% of GDP in 2001).

Figure 11
Investment and variation in the stock of households

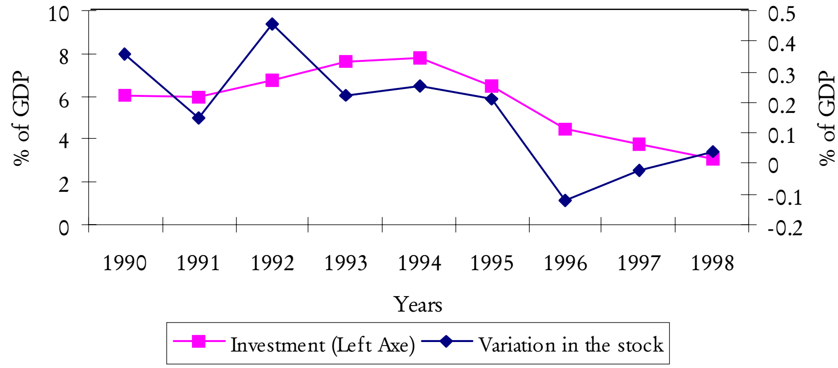


Figure 12
Investment and variation in the stock of private non-financial companies and quasi comanies

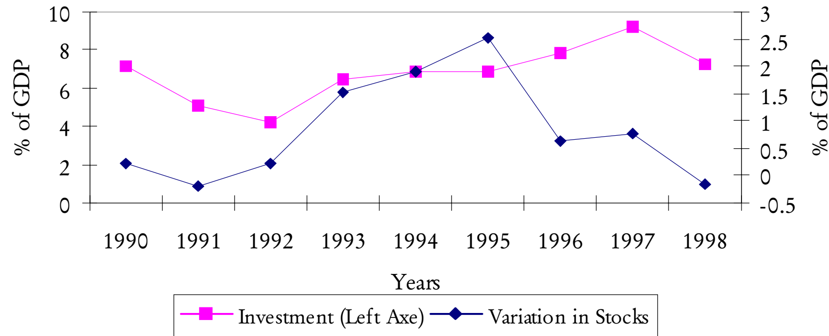
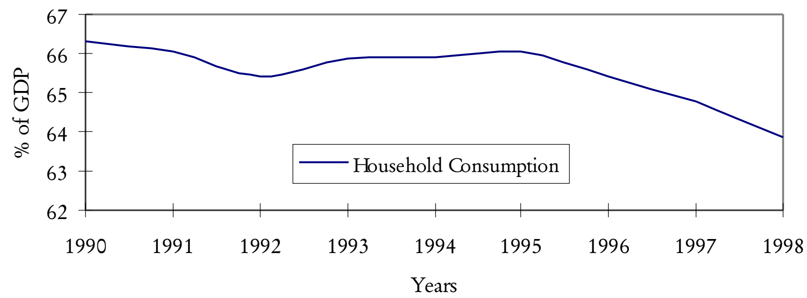


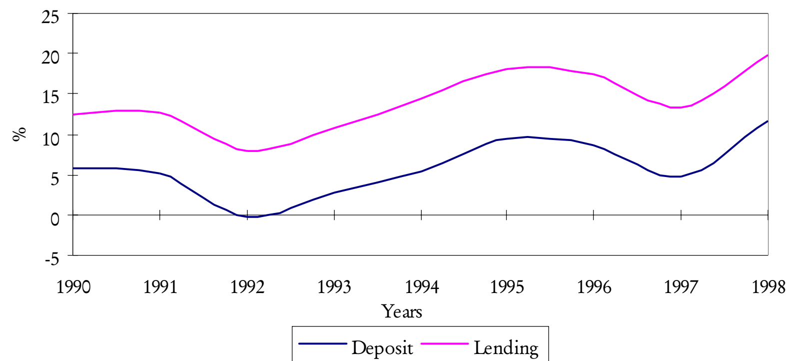
Figure 13
Household consumption at real prices



Source: DANE. Own estimations.

Another feature of the period covered by the past decade's credit cycle was the sustained growth of real interest rates on deposits and loans after 1992, with the exception of 1997, when these declined slightly (Figure 14).

Figure 14
Real lending and deposit rates



Source: Banco de la República

The fact that this tendency appeared in both phases of the credit cycle suggests that the reasons behind it may have been different in each stage. Factors such as policy measures adopted in response to external shocks (particularly the introduction of a non-remunerative dollar deposit for short-term loans not used to finance exports), changes in expectations, and the specific characteristics of the financial market and the home mortgage system probably influenced the behaviour of real interest rates.

The relationship between the upward trend of real interest rates and the several phases of the credit cycle during the 1990s should be highlighted. The following hypotheses can be ventured:

I. It is no surprise that real interest rates increase during the upward phase of credit cycles and credit booms, particularly when they are associated with spending bubbles, as in the case being studied. In fact, during the upswing of the credit cycle in Colombia between 1992 and 1995 real deposit and lending rates rose by nearly 1,000 base points. Several factors help to explain this increase: (a) the sharp decline in private savings that began with financial liberalisation; (b) the

willingness of private agents to undertake more risk in view of the favourable economic prospects derived from the strength of demand and the influx of external capital; and (c) competition between financial institutions for deposits.

II. High interest rates had a negative effect on the behaviour of economic agents and accelerated the end of the credit boom and the spending bubble. This aggravated adverse selection problems in allocating credit. They also worsened the financial situation of households and businesses (which were already affected by an accumulation of debt) and that of financial institutions with mismatches between asset and liability profiles.

III. The shortage in domestic savings became even more severe during the second half of the 1990s and expectations worsened, bringing added pressure to bear on interest rates. In addition, the longer cycle of business investment also implied more demand for financing in the face of a tighter supply. The growing public sector deficit also contributed to put pressure on interest rates.

6. Financial performance by sectors and the credit cycle

A better understanding of the credit cycle is made possible by analysing its relationship with changes in financial performance of economic agents that were induced or made possible by the financial reforms instituted in the early 1990s[18]. This analysis will focus on two of the consequences of the financial liberalisation and the increase in external capital flows to Colombia in the 1990s: the financial deepening of the economy and the credit cycle[19].

[18] The information used in this section comes from the Financial Accounts prepared by Banco de la República. They identify and quantify the financial portion of the capital account for institutional agents (public administration, financial institutions, households, private companies, and government-owned companies) and for the economy as a whole. Among others, this includes the flow of loans acquired or extended by these agents, as well as the changes in their assets and liabilities. They also allow for a more precise examination of how the flow of surplus savings from certain agents is distributed among those with insufficient resources. At the time this paper was written, Financial Accounts were available for the 1990-1999 period.

[19] The relationship between these two factors is obviously close and gives rise to what can be called the endogenous aspects of the processes so far discussed. Financial deepening implies changes in the sources and uses of financing and fuels the so-called "credit channel" by increasing the amount of the economy's resources that are channelled through the financial system. The growth in credit explained earlier activates the so-called "financial accelerator". The nature of financial deepening and its effects on the development of the credit market is limited by the extent to which financial instruments are available at a given point in time.

6.1 Private adjustment to financial deepening

The notion that financial liberalisation could result in more resources being allocated through the markets assumes that the economy gains in terms of its level of financial deepening. Information from the Financial Accounts makes it possible to determine whether these changes happened in Colombia during 1990s.

The following identity of the sources and uses of financial resources was used:

$$S + \Delta P_f = I + \Delta A_f \qquad [1]$$

Where: S = savings; ΔP_f = change in financial liabilities; I = investment; and ΔA_f = acquisition of financial assets.

Equation 1 corresponds to the capital account, which measures changes in investment in real and financial assets along with changes in the financing of this investment in terms of own resources and borrowing. In applying the equation to the information from the Financial Accounts and the National Accounts, several aspects are worthy of mention (Figures 15 and 16).

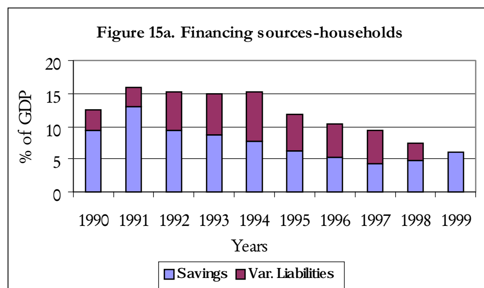


Figure 15a. Financing sources-households

Source: Banco de la República

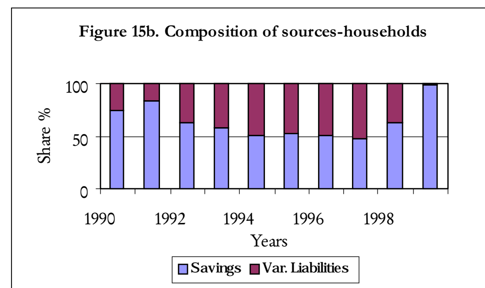
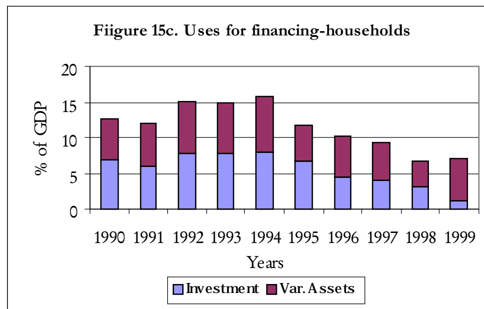


Figure 15b. Composition of sources-households

Source: Banco de la República



Fiigure 15c. Uses for financing-households

Source: Banco de la República

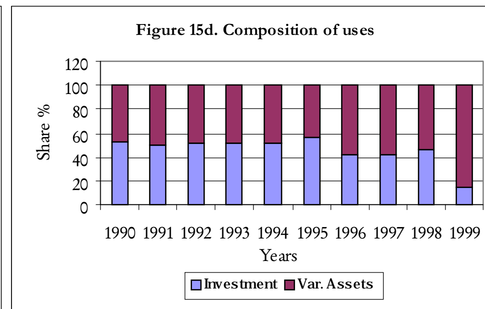
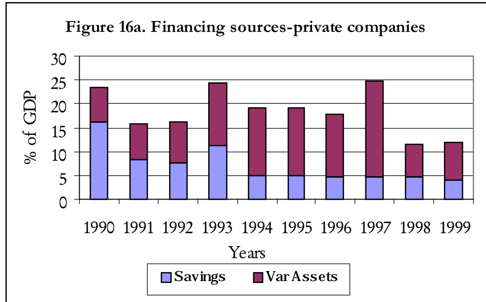
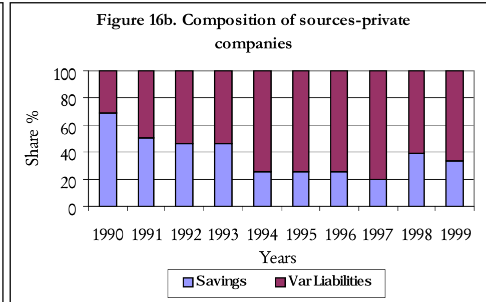


Figure 15d. Composition of uses

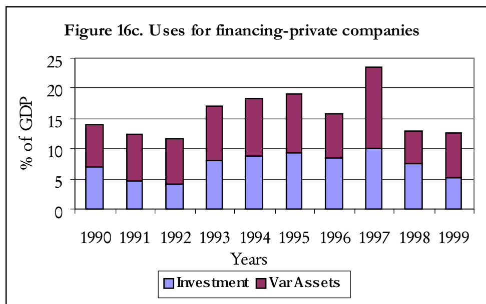
Source: Banco de la República



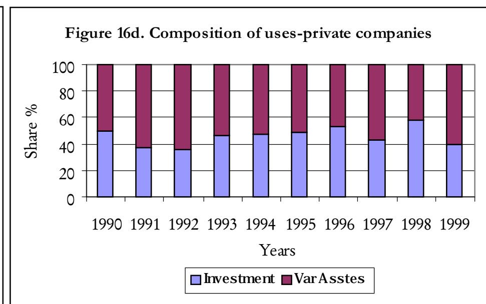
Source: Banco de la República



Source: Banco de la República



Source: Banco de la República



Source: Banco de la República

Financial liberalisation generated an increase in resources mobilised by both households and private businesses. Private agents responded to the emergence of new financial instruments and investment opportunities by increasing their portfolio as a percentage of GDP. In the case of households, total uses rose from 12% of GDP in 1992 to nearly 16% of GDP in 1995 and in private businesses from 11% of GDP in 1992 to 19% in 1995[20]. This is a clear indication of a financial deepening of the economy in the wake of financial reform.

It is interesting to note that neither households nor private businesses significantly changed the way they used their resources. The private sector initially responded to the incentives and opportunities of financial liberalisation by increasing its capital expenses with added investment in real and financial assets, in more or less equal proportions.

[20] By definition, and as the equation [1] indicates, total sources should be equal to total uses for each sector and for the economy as a whole. Unfortunately, the equation combines information from two different sources (the National Accounts and Financial Accounts), both of which are in the process of being adjusted and reconciled.

The most notable element in terms of financing sources was the replacement of savings with borrowing, which meant a considerable increase in private sector leverage. This applied to households as well as to businesses. For example, savings accounted for slightly more than 80% of the sources of financing of households in 1991. This share had fallen to 45% by 1997. In the case of businesses, savings fell from almost 70% of the total sources of financing in 1991 to less than 20% in 1997. Borrowing instead of saving is perhaps the most significant change in the behaviour of private agents brought about by financial liberalisation.

This is fully consistent with the observed decline in savings rates (savings as a proportion of GDP) for both businesses and households. In effect, household savings as a share of GDP fell from 14% in 1992 to less than 5% in 1997. For businesses, the decline in savings from 1991 to the mid-1990s implied a fall equivalent to 10% of GDP (from 15% to approximately 5%). The amount of capital resources mobilised (sources) and utilised (uses) by the private sector, measured as a percentage of GDP, followed a pattern similar to that of the credit cycle; it grew after financial liberalisation and declined from 1995-1996.

In conclusion, financial liberalisation contributed to what we have called financial deepening, which is evidenced in the evolution of private sector balance sheet. More investment was made in financial and real assets, using resources from growing indebtedness. However, the change that endured was the drop in savings in absolute terms. Both investment and the acquisition of financial assets and liabilities declined during the second half of the 1990s. This can be understood as a reversal of the process of financial deepening described above. An important question that remains is whether the turnaround is structural or temporary[21]. This sequence of financial deepening and its reversal coincided in time with cycles of credit patterns regarding the private sector, external capital flows, the gap in GDP growth compared with its potential and the spending bubble. The reversal of financial deepening in the late 1990s can be interpreted as partial breakdown of the credit channel.

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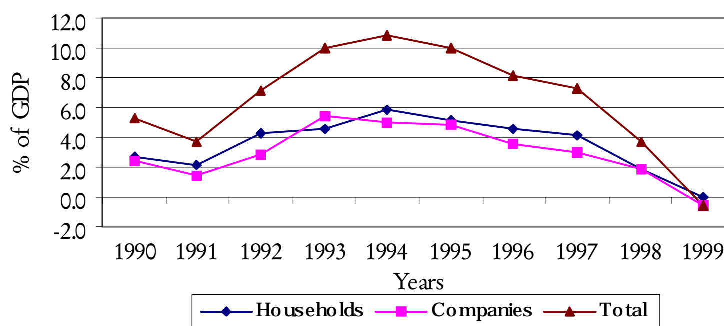
[21] This question is impossible to answer because the Financial Accounts do not provide the information required to calculate financing sources and applications in the various sectors for periods prior to 1990. However, using an aggregate index of financial deepening; namely, the M3/GDP ratio, it is possible to conclude that the Colombian economy was effectively less deep in financial terms during the 1980s than in the 1990s (26% against 36.7% for the M3/GDP ratio), with index's cyclical movement deepening in the 1990s (which rose from 28% in 1991 to 43% in 1997, before falling to 36% in 2000). Financial reform clearly led to increased levels of financial deepening compared with earlier periods.

6.2 The credit cycle from the economic sector standpoint

The cycle of credit from the financial sector to households and businesses followed a similar pattern, with an upward phase between 1991 and 1994, when loans as a percentage of GDP went from 3.5% to 11% and a longer downswing with a sharp drop in loans to virtually nothing in 1999. Loans to the private sector fell by seven percentage points during the last two years considered in this study (Figure 17).

Figure 17
Financial-sector loans to the private sector



Source: Banco de la República

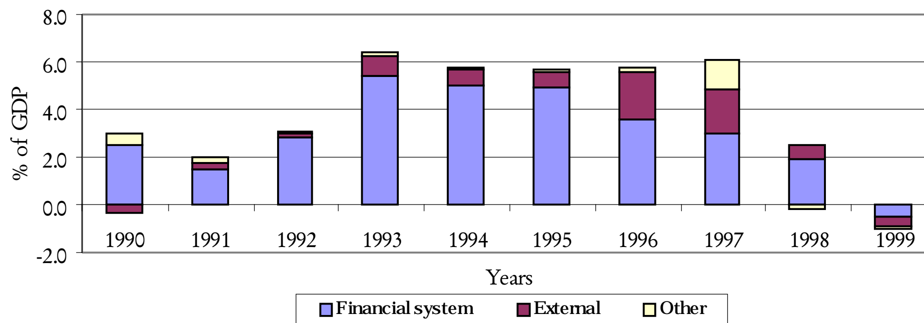
The situation of businesses looks particularly dramatic when all sources of loans to which this sector had access during the 1990s are taken into account. These include, besides credits from the Colombian financial sector, external loans and "other sources". The last classification refers to loans businesses receive from non-financial agents such as shareholders, the Home Office, etc.[22] A number of studies highlight non-financial sources of credit as being supplementary to traditional sources. They can arise under normal credit market conditions in response to problems with imperfect information or as short-term emergency resources when normal sources of financing are closed [Demirgüç-Kunt and Maksimovic 2001].

The use of total loans significantly changes the credit cycle for businesses without affecting that of households which do not have access to sources of financing

[22] It does not include items such as accounts payable, which are listed in the Financial Accounts as "commercial credit".

other than the domestic financial sector (Figure 18). For private companies, the possibility of resorting to external loans or credit from "other sources" postponed the downswing in the cycle from 1995 to 1997. In other words, the reduction in financial-sector loans to companies from 1996 was initially compensated by external loans and later by loans from "other sources". The possibility of offsetting the decline in loans from the financial system with alternative sources is rather limited, particularly when it comes to "other sources", which by nature are short-term. Thus, in 1998 and 1999, net loans to business from these sources were negative.

Figure 18
Total loans to private companies



Source: Banco de la República

Figure 18 also shows the dramatic situation businesses faced during those two years, given the decline in loans from all sources. While these accounted for 6% of GDP in 1997, their net value was -1% of GDP in 1999, including external loans, which had been especially significant in 1996 and 1997. Considering the sudden reversal in external financing, loans to business fell by the equivalent of 7% of GDP between 1997 and 1999.

The rapid reduction in net loans to businesses and, more importantly, the fact that they were negative in 1999, points to a severe adjustment for the sector. In terms of the capital account, it implied a reduction equal to five percentage points of GDP in the investment rate, which is equivalent to a 50% decline in that rate. The contribution of this adjustment to the recession in the Colombian economy that year must have been decisive.

One final point derived from our analysis of credit based on the National Accounts deals with the public sector's involvement in the credit market during the cycle. It is significant that, in general terms, the downswing in the credit cycle to the private sector (after 1994-95) coincided with an increase in loans to the public sector. This period corresponds to the change of sign in public sector savings-investment balance and its growing deficit.

This means that while the private sector received decreasing volumes of external credit from the mid-1990s onwards, the public sector was able to improve access to these resources. In other words, at a time when external net loans to businesses and financial institutions abruptly became negative (1998-99), the public sector, and particularly central government, increased its foreign borrowing.

This shows how changes in the domestic and external credit market at the end of the 1990s forced a severe adjustment upon the private sector and made a larger imbalance in public sector finances possible.

7. The legacy of the credit cycle and sector structural adjustment

7.1 Cycles, economic crisis and the demand for credit

The year 1999 marked the end of the several cycles discussed above. All of the following are different manifestations of the same phenomenon: the credit cycle, the spending bubble, the gap between actual and potential GDP growth and the cycle of external capital flows. Each of these cycles had been on a downward trend since the mid-1990s; together with the growing current account deficit in the balance of payments, they were indicators of an oncoming economic crisis. But it was in 1999 when their outcome led to a severe fall in GDP and numerous financial institutions' insolvency.

The information we have reviewed suggests that, independently of any economic policy that might or might not have contributed to this crisis, the abrupt change in the direction of external capital flows triggered the crisis. A credit crunch for the business sector equivalent to seven percentage points of GDP in two years ending with negative net loans from the domestic financial system to the private sector as a whole cannot be absorbed without a major adjustment in economic activity and spending levels.

This abrupt reversal of external capital flows reflects international financial markets' reaction to the Asian and Russian crises. It can be considered an exogenous shock for the Colombian economy. Nevertheless, it is also true that those endogenous developments in the Colombian economy we have surveyed made it highly vulnerable to shocks of this type and facilitated its contagion by international capital markets volatility.

Several factors evident in 1999 were remarkable because of their relationship to the reforms instituted at the start of the 1990s and the processes they triggered. When the cycles in question came to an end, the private sector's financial situation had not changed significantly with respect to the situation before the reforms; levels of credit, investment and savings (as a percentage of GDP) were similar in the best cases and in most cases inferior (Figures 15, 16 and 17). The private sector encountered the crisis in a particularly fragile state, with high levels of borrowing and balance sheets that were very sensitive to increases in interest and exchange rates. It had also been weakened by the drop in housing prices and other assets, and by the extremely low savings rates mentioned above[23].

It may be concluded that the private sector was not then (and probably is still not) capable of assuming risks by undertaking new productive projects or taking up additional borrowing, unless it restructured its balance sheets and restored and stabilised its cash flow. Restructuring necessarily implies bankruptcies and the reorganisation of firms, unemployment, diminished consumption and the like, as well as a general revision of expectations based on greater risk aversion. A sign of this has been the effort to reduce high debt-capital ratios, both because of the risk they imply and the burden of interest from excessive indebtedness[24]. The demand for credit, at least under prevailing market conditions,

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[23] There are no lengthy, representative series with information on the borrowing ratios of companies or the private sector in general. Calculations based on balances in the Financial Accounts indicate that the total private company debt in Colombia was close to 36% of GDP for 1999 and that for households, 15% of GDP. Estimates contained in the Banco de la República's Financial Stability Report, based on financial institution sources, place the gross debt in the non-financial private sector for the same year at 43% and indicate it declined to 33% of GDP in 2001 [Banco de la República 2002b].

[24] Law 550, 1999, or the Business Reconstruction Law, illustrates the type of mechanism whereby the productive sector, in this case with the help of the national government, carried out the adjustment in question. According to *La Nota Economica*, 32 agreements had been signed by April 30th 2002. They accounted for approximately Col$2.7 trillion in liabilities. Another 230 agreements were in the works, with liabilities of nearly Col$330 billion.

cannot but reflect the new realities; it will be restrained and will continue to be so as long as the above mentioned problems persist[25].

7.2 Crisis, financial system adjustment and supply of credit

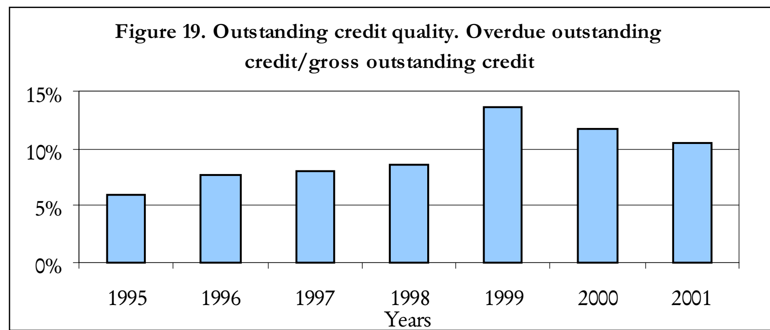
The causes of the negative trend in demand for credit also had effects on the Colombian financial system. The downswing in the cycles that began around 1995 affected the credit market and the liquidity and solvency of financial institutions to the point where many ceased to be viable; the system as a whole reached the verge of crisis. As a result, government intervention was necessary. Its stance on regulation and supervision was revised and changes in legislation were adopted.

These issues do not fall within the scope of the present study, even though they were largely determined by the hardships of the savings and loan system and the cyclical behaviour of the housing market within the broader context of the speculative bubbles described in previous sections. However, it is pertinent to note that the Colombian financial sector has responded with its own structural adjustment to the crisis of the late 1990s. One of the characteristics of this adjustment has been an anti-loan bias, which is critical for the understanding of credit stagnation in recent years.

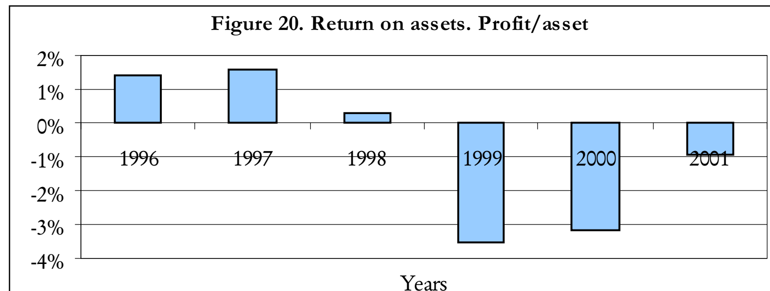
The logical sequence of events is relatively simple. The boom phase of the cycles came to an end around 1995. This year also marked the beginning of a slow decline in credit market conditions and financial system profitability and solvency. The general economic crisis of 1998-1999 laid bare the structural problems the financial system had accumulated during the first years of financial liberalisation. There was then an over-reaction by the financial sector. While the private sector was hit hard by the loss of access to foreign credit, the Colombian financial system redirected its credit to the public sector. In other terms, the financial sector became extremely, and perhaps unjustifiably, risk-averse regarding credits to the private sector.

[25] Surveys conducted by Fedesarrollo in 2001 for Banco de la República showed businessmen had little interest in acquiring new loans. Thirty-four percent (34%) of the companies surveyed claimed to have refrained from requesting loans in the last year, so as to reduce their debt.

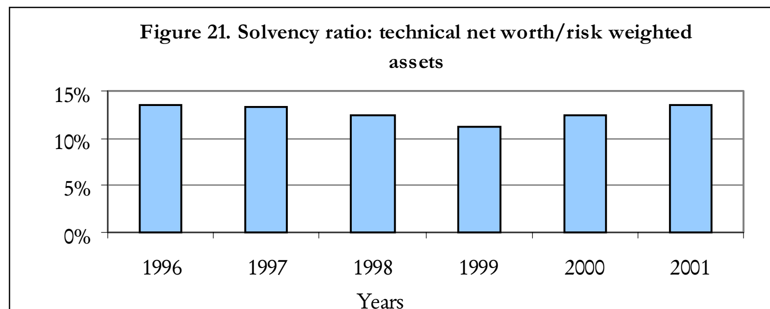
Figure 19 shows the growing relative importance of non-performing loans in total loans after 1995. This indicator gradually increased until 1997 and then exploded between 1998 and 1999 when it reached its peak. Loan quality has improved since because of measures including liquidation and writing-off non-performing assets, more efficient collection practices, better customer selection and new types of contracts with other kinds of collateral, rescheduling, etc. Figure 20 shows how a slow recovery is underway following a sharp fall in return on assets between 1997 and 1999. A similar pattern may be observed in financial system solvency ratio presented in Figure 21.



Source: Banco de la República



Source: Banco de la República

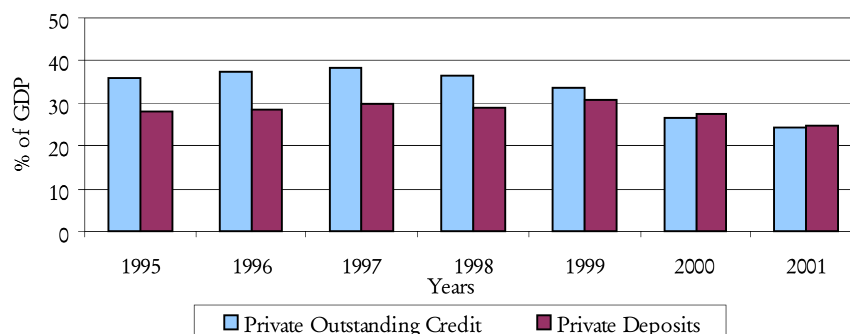


Source: Banco de la República

Other variables help understand the strategy of Colombian financial sector structural adjustment after 1999[26].

Figure 22 –where variables are presented as a percentage of GDP– shows a decline in the difference between credits to the private sector and private sector deposits in the financial system since 1998. From 2000 onwards, and unlike previous years, the financial system has become a net debtor to the private sector. This is because credits fell more rapidly than deposits.

Figure 22
Financial system adjustment

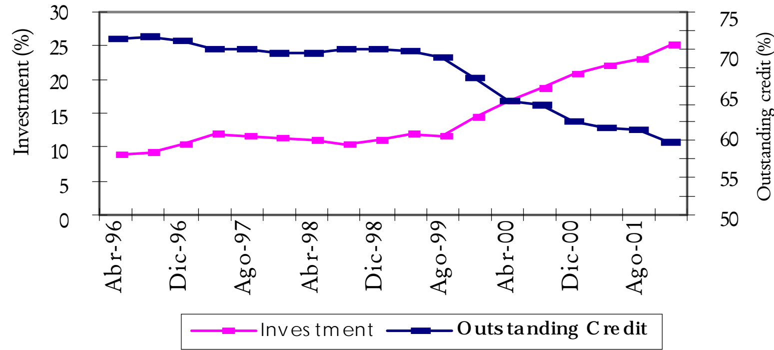


Source: Banco de la República

Figure 23 shows a radical change in the make-up of financial system assets after 1999. Financial institutions began to invest more in bonds, particularly public debt securities, and to reduce the share of loans in total assets. This shift accounted for 15% of the system's assets over a three-year period. It is due in part to regulatory requirements (obligatory investments), in part to slow growth in private demand for credit *vis a vis* a public sector which became an aggressive borrower and to the fact that the financial sector saw the purchase of government securities as an easy means of improving its balance sheet expected return/risk ratio[27].

[26] Given the general nature of this study and its objectives, important considerations respecting certain financial institutions' (banks with foreign capital and Colombian conglomerates with financial institutions in their organisations) particular strategies have been omitted.
[27] De la Torre *et al.* [2002] show that a similar re-composition of financial system assets occurred in many Latin-American countries.

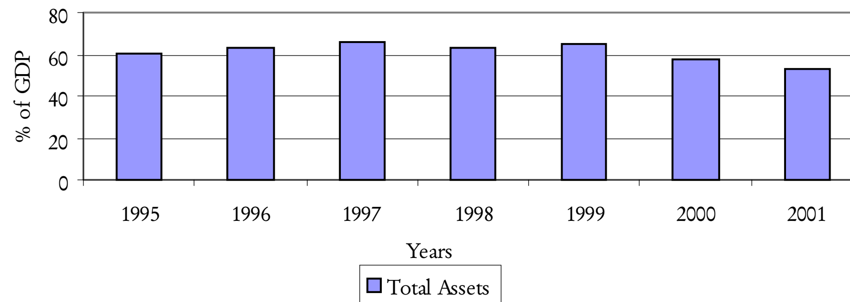
Figure 23
Share of total assets corresponding to investment and the gross outstanding credit



Source: Banco de la República

Figure 24 shows how the financial sector has become smaller since 1999, if one measures its size as the proportion of total assets to GDP. This can be interpreted as an expression of the fact that many financial institutions were not viable, or as a reflection of measures to downsize and restructure the system as a whole during its crisis[28]. However, it may indicate a structural adjustment of the financial system towards a new long-term equilibrium more in keeping with the size of the Colombian economy and the extent of its financial depth. After the hypertrophy of the credit boom and the spending bubble during the past decade, the financial sector seems to be in a process of implosion: a response to the realities of low savings and investment rates and Colombians' efforts to adjust their standard of living to the fall in real income caused by the crisis of 1999 and the following years.

Figure 24
Global adjustment of the financial system



Source: Banco de la República

[28] In fact, between 1996 and 2001, nearly 90 financial institutions ceased to exist.

The Colombian financial sector is undergoing fundamental transformations. There is a new perception of risk, but the economy does not offer adequate mechanisms for its management and diversification. It is also possible that the financial system was too large with respect to the size of the economy and its structural characteristics. These factors help explain the anti-loan bias. They also suggest that there are negative incentives for financial institutions' capitalisation by their shareholders[29]. These are some of the reasons why one might expect restrictions in the availability of credit from the supply side of the market[30].

8. Conclusions

The low and negative growth rates in credit seen in Colombia during recent years are not exclusive to this country. They are the result of failures in the way credit markets operating in emerging countries (and in some developed ones too) during the past decade, (i) gave markets, especially financial ones, a more important role in resource allocation; (ii) registered significant and unpredictable inflows and outflows of external capital; and (iii) suffered economic crises of differing magnitude which, in all cases, affected their financial systems and, to a lesser degree, the external sector.

In essence, the problem seems to be that the financial system in these countries has a procyclical effect on the economy, aggravating external and political shocks and probably making its sector imbalances more acute. This can also reflect developing countries' difficulties in creating an appropriate institutional framework for regulating integration with international markets. Instability, volatility and loss of control over the economic processes derived from such integration seem to be consequences of globalisation that have not met with an adequate policy response.

Although the full effects of exchange and financial liberalisation in the early 1990s have not been assessed in this study, we do find that the performance of

[29] When deposits (low-cost resources) fall and uncertainty about the viability of the business (perception of risks) grows, the cost of capital becomes too high and may lead to a fall of capital in financial institutions [Stiglitz 2001].

[30] According to the Banco de la República [2002b] the Colombian financial system's solvency ratio would impede loan portfolio's growth to pre-1998 levels even if the increase of bonds and other financial investments –including "repos"– were to be reversed.

the economy and agents' behaviour changed radically with Colombia's integration with international financial markets. One must begin with scrutinising the liberalisation of domestic financial system and international capital movements to understand current problems regarding credit stagnation.

Macroeconomic aggregates became more dependent on changes in financial variables. External capital flows, domestic credit market cycles and GDP growth are now more closely correlated. The causes may be found in financial liberalisation at the beginning of the 1990s and the very significant capital inflows from abroad, due to eliminating capital account controls and foreign exchange policy making peso-denominated assets very attractive because of high domestic interest rates and low nominal devaluation. These policy and external shocks were transmitted to the economy through the credit channel and the financial multiplier, giving rise to a spending bubble sustained by a credit boom. Public spending, household investment –particularly in housing– and to a lesser extent investment by businesses, helped inflate the spending bubble.

Analysing the balance sheets of households, businesses and the financial system provides clues regarding their willingness and capacity to assume risks. Optimistic expectations about the price of assets, housing in particular, probably made the credit boom of the early 1990s possible. When expectations changed, it became evident just how frail those balance sheets were. We believe the turning point came in 1995, giving way to a downswing in the credit cycle and the implosion of the spending bubble.

A number of factors contributed to this result. Among them were: high real interest rates, a decline in the private sector savings rate, the public sector deficit and the current account deficit of the balance of payments. The change of direction of external capital flows as international markets' reaction to the Russian and Asian crises triggered a profound crisis. Within a period of two years (between 1997 and 1999) the net loans received by the private sector in Colombia fell from the equivalent of 6% of GDP to minus 1%.

In turn, the Colombian financial system faced the decline of the quality of its loan portfolio, significant negative returns on assets and, in the case of many institutions, insolvency. It had to undertake its own adjustment process from a position of weakness and this process may have aggravated the recessive effects of the external shock on the private sector. Given these conditions, it should be no surprise that the financial sector became particularly risk-averse, as evidenced

by an anti-loan bias and reduced incentives for capitalisation by financial institution shareholders.

The debate regarding whether credit stagnation is due to supply or demand factors, although significant for analytical and policy purposes, leaves aside important issues. To recover credit growth, it is necessary to restructure potential debtors' balance sheets and to improve and stabilise their cash flows. Such efforts, however, are not independent of low savings rates in the Colombian economy, the fall in the ratio of financial assets to GDP or exogenous factor that might affect foreign capital inflows.

The question remains as to whether or not this adjustment also implies the search for a new long-term financial system equilibrium, given the reality of a private sector and of an economy which, because of their size and their capacity to mobilise funds, are more akin to what existed before the reforms instituted at the start of the past decade. To what extent this adjustment is an involution of the system following the hypertrophy that generated the bubble in the 1990s is a question that only time can answer[31].

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[31] This question does not ignore the important progress Colombia has made in recent years to develop an incipient capital market, thanks to the emergence of a public debt market, pension and severance funds and private bond issues.

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Appendix 1

Cross correlation between credit to the private sector and capital flows, both as a percentage of GDP.

Sample: 1970 1999
Included observations: 30
Correlations are asymptotically consistent approximations

CRED_PIB01,FKP_PIB01(i)	CRED_PIB01,FKP_PIB01(-i)	i	lag	lead
		0	0.6288	0.6288
		1	0.7355	0.4246
		2	0.6686	0.2370
		3	0.4704	0.1033
		4	0.3015	0.0096

Appendix 2

Cross correlation between the gap between current and potential GDP and credit to the private sector as a percentage of GDP.

Sample: 1970 1999
Included observations: 30
Correlations are asymptotically consistent approximations

BRECHAPIB,CRED_PIB0	BRECHAPIB,CRED_PIB0	i	lag	lead
		0	-0.0009	-0.0009
		1	-0.2227	0.2052
		2	-0.3702	0.2531
		3	-0.3742	0.1928
		4	-0.2847	0.1151