Capital flows and financial assets in Colombia: recent behaviour, consequences and challenges for the central bank

Hernando Vargas and Carlos Varela[1]

1. Introduction

Since the early 1990s Colombia has experienced two prolonged episodes of strong capital inflows separated by an episode of capital flight. The first episode in the 1990s ended with the "sudden stop" crisis of 1998–99. This event was characterised by the reliance on external borrowing as the primary source of external financing, followed by foreign direct investment (FDI) and portfolio inflows. The sudden stop of 1998–99 was the consequence of the international crisis in the capital markets and resulted in the loss of access to foreign debt markets. This forced a drastic adjustment in the current account, which registered a surplus in 1999, after several consecutive years of increasing deficits.

After 2000, the Colombian economy experienced a renewal of capital inflows, especially public debt and portfolio inflows, as the economy regained access to the international capital markets. This process was interrupted in the second half of 2002, with the emerging market crisis arising from the Brazilian elections. The most recent episode of capital inflows started in 2004 and has been characterised by a lessened dependence on external borrowing, and a significant increase in FDI.

This paper analyses the evolution and impact of capital flows in Colombia over the past five years. The following section characterises the nature and composition of capital flows. Next, the repercussions of capital flows for the financial system are discussed. Finally, some implications of capital flows for the conduct of monetary and exchange rate policies are presented.

2. Characterisation of capital flows in Colombia

a. The current account deficit

Unlike other emerging market economies (EMEs) in the region, Colombia has registered an increasing current account deficit over the past years (Table 1). This evolution is related to sizeable increases in investment ratios (to GDP), despite rising saving ratios. Both public and private saving have increased, while private investment explains the growth of total investment (Table 2). Since 2002, corporate saving explains a large fraction of the increase of the saving ratio (Graph 1). In other Latin American EMEs, investment and saving ratios have been more stable, and current account surpluses have been produced by slight decreases in investment and increases in saving (Tables 3 and 4). Like Colombia, central

[1] Banco de la República Colombia. Deputy Governor and Director of the Technical Unit of Economic Research, respectively. This document does not necessarily reflect the official position of the Banco de la República (the central bank) or its Board of Directors. We are grateful to Alejandro Revéiz for his valuable comments and insight regarding the effects of capital flows on the financial system. Help with data processing and analysis from the staff of the External Sector, Financial System Sector and Market Development Operations departments at Banco de la República is gratefully acknowledged.

and eastern European EMEs have recorded growing current account deficits, but in this case saving ratios have remained stable while investment ratios have risen (Tables 3 and 4).

b. The funding of the current account

The financing of the current account deficit in recent years has increasingly relied upon FDI net inflows, although foreign indebtedness remains an important source of external financing. Portfolio flows have stayed at low levels and only recently became a significant source of foreign funds (Table 5).

The importance of FDI gross flows in the funding of the current account deficit may also be appreciated by comparing it to other countries (Graph 2). At the beginning of the decade FDI represented 2.9% of GDP, one of the lowest among the largest Latin American economies. Between 2004 and 2006, FDI in Colombia surged and reached ratios of GDP among the highest in the region (around 6% of GDP).

The recent behaviour of FDI flows is different from that of the 1990s. There has been a considerable rise in FDI in the oil and mining sectors, with the share in total FDI rising from 19.6% in the 1990s to 41% in the present decade. FDI in the manufacturing sector has increased from 22.7% of total FDI in the 1990s to 27.4% in the 2000s. However, this number includes the purchases of large Colombian firms by foreign investors (close to 40% of total FDI inflows in the last three years). Conversely, FDI in the electricity sector, which represented 21.4% of total FDI in the 1990s, has declined to –0.9% in this decade. In the remaining sectors (non-tradables), FDI has slipped from 36.3% of total FDI in the 1990s to 32.5% in the 2000s.

The large increase in FDI for the oil and mining sectors is partly related to the rising international prices of these commodities (Table 6). Also, the more favourable contractual conditions for foreign firms to explore and exploit oil fields may have attracted additional FDI into that sector. It should be noted that a large share of FDI in these sectors takes the form of imported capital goods. For example, in 2006 the “imported component” of FDI amounted to 20.6% in the oil sector, and 38% in the mining sector. In addition, the sizeable inflows of FDI have implied increased profit remittances.

Over the past five years FDI by Colombian residents abroad has fluctuated between 0% and 1.5% of GDP, except for 2005, when the former owners of Bavaria, the largest brewery in the country, received stocks from SAB-Miller as partial payment for the sale of the corporation (Graph 3). Other outflows of Colombian FDI have gone to the electricity, beverages, banking and cement sectors.

Public debt inflows increased at the beginning of the decade, but were reduced after 2004, within a strategy of decreasing the FX exposure of the public sector. In fact, in 2005 there were net foreign debt repayments by the government, in an effort to help the central bank sterilise the monetary effects of FX intervention and alleviate the appreciation of the currency. The private sector made net repayments of long-term foreign debt between 1999 and 2004, to reduce its FX exposure. Private foreign indebtedness increased again in 2005 and 2007, in response to interest rate differentials and the expectation of a currency appreciation (Graph 4). Since public debt inflows are mostly of a long-term nature, the recently observed reduction in the average maturity of external debt is explained by a rise in short-term private debt (Table 7).

As mentioned earlier, portfolio investment has not been a significant source of external funding. Net inflows by non-residents are low and include the resources brought in by local investment funds. These do not incorporate indirect position-taking by offshore institutions through derivatives markets. Net flows by residents mainly comprise movements by pension fund managers. These flows are loosely associated with interest rate differentials (Graph 5). In the first part of 2007 there was a surge in portfolio investment that was explained by the

increasing interest rate differential and a non-credible discretionary FX intervention by the central bank, as will be discussed later.

c. Volatility of capital flows

It is difficult to assert that capital flows are now more volatile than in the 1990s. With the exception of the acquisitions of Colombian firms in 2005, net capital inflows by non-residents do not seem to have become more volatile (Graphs 6 and 7). On the other hand, net outflows by private residents have shown larger volatility since 2000, because of portfolio movements of pension funds and the effect on Colombian FDI of payments received as equity for the sale of Colombian companies to foreign investors (Graphs 8 and 9). As mentioned earlier, there have been episodes of high volatility ("sudden stops") in 1998–99 and 2002–03. Lately, in 2007, the level and volatility of portfolio investment rose, as explained above.

The Colombian peso's volatility has been increasing since 2005 (Graph 10). Before, it was below average for a sample of floating exchange rate economies. Also, the Colombian peso exhibits episodes of high conditional volatility (based on a GARCH model), although on average it is as volatile as the yen or the Chilean peso (Lega et al (2007), p 13). However, the volatility of the peso is highly persistent and positively related to the EMBI (Lega et al (2007), p 14, and Kamil (2007), Table 4). FX intervention by the central bank may have reduced the volatility of the Colombian currency between 2004 and 2006, but not afterwards, when intervention lost its credibility and effectiveness (Kamil (2007)). Lower bound restrictions on the net FX cash position by banks seem to diminish the volatility of the currency (Lega et al (2007)).

The episodes of heightened volatility are associated with situations in which many players in the FX market tend to take the same position. This may be due in part to the incentives faced by large market participants such as pension fund managers. Although these institutions are supposed to hold stable, structural positions in several asset markets, Graph 11 shows that their FX exposure follows closely the behaviour of the exchange rate. In addition, Gómez et al (2006) found that these market players engage in very active daily trading in the FX market. More generally, Suárez (2007) presents some measures of herding behaviour on the part of pension funds and links it to regulatory minimum returns.

d. Role of financial intermediaries in capital flows

Most capital flows are not intermediated by domestic financial institutions (Table 8). FDI and most foreign debt transactions are effected directly by non-financial corporations or the government. Financial intermediaries play a role in the case of portfolio investment (pension funds) and some private debt.

e. Foreign participation in asset and derivative markets

In Colombia, foreigners may participate in asset markets (public debt, stocks, bank liabilities) by setting up local investment funds (on-shore). These funds are relatively small and show a loose relationship with interest rate differentials (Graph 5). However, non-residents (off-shore) may have indirect exposure to Colombian assets through the use of derivatives, eg through non-deliverable forward sales/purchases of Colombian pesos. This is estimated by means of the FX net exposure of financial intermediaries, which act as counterparties of offshore investors in the forward market. The latter has experienced substantial growth in recent years (Graph 12). There are no other significant derivatives markets in Colombia due to regulatory restrictions, inadequate accounting rules for non-financial corporations and lack of expertise in the valuation of derivative products.

Restrictions on the participation of non-residents in real estate markets through local investment funds were eased in 1998. Since then, their participation has increased, but it is still very small. The largest figures relate to 2005 and 2006, when FDI in construction and

acquisition of real estate property amounted to US$ 150 million per year, less than 2% of total FDI in those years.

f. Other sources of information on capital flows

Besides quarterly balance of payments information, in Colombia there is a weekly "Foreign exchange cash balance", released with a lag of two weeks. All capital account transactions that involve FX movements in the domestic peso-dollar market are recorded in this statement. It provides a good approximation to some capital flows (especially portfolio investment, debt flows and some FDI flows). However, it excludes the flows that do not involve FX transactions, most importantly a large part of oil-related FDI. In addition, the central bank calculates the net external asset position of financial intermediaries, which includes all cash and derivative FX transactions of the financial institutions.

3. Implications of capital flows for the depth of the financial system and its resilience

a. Financial markets

Portfolio investment channelled through onshore firms (local investment funds) represents a small fraction of the outstanding stock of securities in both the public bond and the stock markets (Graph 13). However, it has gained participation over the past three years. It is difficult to assess the impact of these funds on the liquidity of the capital markets, since, despite its relatively small size, trading activity may be important and there are no readily available data on this.

The effects of external factors on some domestic asset prices are illustrated in Graph 14. Since 2002 there is an apparent inverse relationship between the prices of Colombian foreign debt bonds ("Yankees"), determined by external interest rates and sovereign risk premia, and the exchange rate (measured as pesos per US dollar). Also, there was a positive relationship between the prices of domestic and foreign Colombian public bonds (TES) until July 2006. After that, the relationship broke down because Colombian financial institutions realised market risk losses on their domestic public bond holdings and started reducing their exposure to this risk. This will be described in some detail in the next section. In some sub-periods, there seems to be an inverse relationship between the central bank policy rate and the price of domestic public bonds.

For their part, stock prices exhibited sustained growth between 2003 and 2006. Their relationship with the prices of foreign Colombian public bonds (Yankees) became closer after 2004, while there has been a clear inverse relation with the exchange rate in the same period (Graph 15).

In terms of volatility, the coefficient of correlation between the conditional variances (GARCH) of the daily returns on Yankees and the returns on domestic public bonds (TES) is around 30% for the period 2000–07. A similar coefficient is obtained for the case of Yankees and stock prices. The correlation of conditional volatilities of the returns on the exchange rate and Yankees is much lower (6.6%). In sum, there is a significant influence of external factors on the level of domestic asset prices and, in some cases, on their volatility. There have been no new hedging instruments linked to capital flows in Colombia due to regulatory restrictions.

Domestic asset markets are integrated. Graph 16 shows the correlation coefficients between the daily returns on TES and stock prices (positive), and TES and the exchange rate (negative). After July 2002 those correlations became stronger. The negative relationship between the exchange rate and stock prices has already been noted. In terms of volatility, the correlation between the conditional variances of TES and stock price returns is 23%. The

value of this coefficient is 12.9% for the conditional variances of TES and the exchange rate, while a coefficient around 32% is obtained for the conditional variances of stock prices and exchange rate returns.

The experience of the current decade shows that Colombian financial markets are vulnerable to external shocks. During the second half of 2002 there was a regional emerging market crisis related to the elections in Brazil that led to a disruption of domestic asset markets. The crisis caused a rise in the sovereign risk premium, a depreciation of the local currency and a flight away from domestic assets (TES) by both financial intermediaries and other agents. The changes in market sentiment affected in particular brokerage firms that were leveraging their purchases of TES with bank credit, using the same securities as collateral. When commercial banks saw their access to external credit lines curtailed and the value of their collateral (Yankees) reduced, they cut the credit supply to brokerage firms and increased the demand for dollars. This exacerbated the plunge in the prices of TES and the rise of the dollar, as brokers had to realise their losses by liquidating their TES holdings.

After the crisis subsided, the market recovered its appetite for TES and, between 2004 and 2005, financial intermediaries accumulated large holdings of TES originated in the efforts by the government and the central bank to reduce the FX exposure of the government and to sterilise the monetary expansion resulting from FX intervention. As a consequence, there was a large increase in the exposure of the financial system to market risk, amidst the lack of instruments for individual agents to hedge it. Against this background, in the second quarter of 2006 two events prompted the realisation of possible large losses associated with the drop in TES prices. First, the central bank modified its policy stance in the face of inflationary risks, and second, external turbulences reappeared, producing increases in the sovereign risk premium. Stock prices also suffered heavy losses, which were compounded by the highly leveraged positions of some agents.

These episodes show that the vulnerability of capital markets to external events stems in part from their structure. In particular, in such situations it may be hard to find a substantial group of agents that are willing to take opposite positions to market sentiment. This forces the central bank or the government to assume this role. As mentioned above, pension fund managers, for example, sometimes act as traders with a short-term time frame, and not as long-term investors holding stable, structural positions. Also, the low participation of foreigners in domestic asset markets may hinder the possibility of having diverse, heterogeneous participants in those markets. However, this potential benefit depends on the assumption that foreign investors are more diverse and less procyclical than domestic ones.

b. Financial institutions

Capital *inflows* do not seem to have an impact on the size of assets and liabilities of financial institutions. However, the balance sheets of these intermediaries expanded between 2004 and 2007 (Graph 17). This can be explained by the large increases in the demand for local assets by residents. Monthly portfolio investment outflows by residents went down from US$ 160 million on average between 2000 and 2003 to outflows of US$ 70 million on average between 2004 and 2007. Broad money demand grew rapidly in the face of large expectations of currency appreciation and lower external interest rates and sovereign risk premium. Deposits in the financial system increased from 31.2% of GDP in December 2003 to 38.2% in December 2006. Estimations of broad money demand equations indicate a significant response of this aggregate to shifts in interest rate differentials.[2]

[2] Quarterly VEC estimations of real broad money demand ($M3^D/P$) for the period 1986–2007 produce the following long-term equation:

Regarding the role of onshore foreign banks in the intermediation of capital flows, there is no strong evidence that they are more active than domestic banks. Not only do depository institutions intermediate a small fraction of capital flows, but also the share of total assets represented by external loans intermediated by foreign banks is similar to that of domestic banks (Graph 18). The only significant difference occurred during the "sudden stop" of the late 1990s, when domestic banks saw their lines of credit reduced, while foreign banks were able to maintain their foreign loan intermediation activities.

c. Non-financial institutions

Restrictions on the foreign exchange cash position of financial intermediaries imposed in 1999 and 2004 limited the extent to which these institutions could bring in foreign capital to exploit interest rate arbitrage opportunities. The purpose of these restrictions was to curb the size of the appreciation or depreciation of the currency. As a result, non-financial institutions (not subject to the restrictions) stepped in and took advantage of those opportunities. In most cases, they worked jointly with a commercial bank and provided the liquidity required to arbitrage the interest rate differentials.

However, the FX and forward operations done through this arrangement are small relative to size of these markets (Graph 19), and the restrictions on the foreign exchange cash position of financial intermediaries are sometimes binding or close to it. When this happens, financial institutions are not able to take positions on the forward market and the forward premium deviates from the interest rate differential[3] (Graph 20).

d. Foreign investors

It is possible for foreign investors to take positions in the forward market (non-deliverable) to bet on the appreciation (or depreciation) of the peso. This, apparently, does not involve any capital inflow. However, the counterparty, usually a financial intermediary, seeks to hedge its forward position and there is in the end an inflow (outflow) corresponding to the initial position in the forward market. The FX risk, in the case of inflows, has sometimes landed with the central bank through FX intervention.

$$\frac{M3^D}{P} = 2.830 \cdot GDP - 0.016 \cdot Inflation + 0.016 \cdot (i - i^* - \hat{e})$$

where i corresponds to the nominal return on the financial liabilities included in *M3*, i^* is the US nominal 90-day CD rate and $\hat{e}$ is the annualised quarterly depreciation rate of the peso. Note that the coefficient of the interest differential term implies that a 1 percentage point increment in the differential is associated with a 1.6% increase in the real demand for money in the long run.

[3] When the restrictions on the banks´ FX net cash position (FNCP) get closer to regulatory limits (eg around zero after 2004), banks are unable to buy forward US dollars. Hence, the forward price falls below the level implied by the interest rate differential. For this reason, at times we can expect an inverse relation between FNCP and the deviation of the forward price from the interest rate differential.

4. Implications of capital flows for the conduct of monetary and exchange rate policies

a. Effects of capital flows on the exchange rate and the monetary and FX policy stance

As indicated above, the nature of the capital inflows into the Colombian economy in the past five years shows a large "long-term" component (Graph 21). Elbadawi and Soto (1994) and Alper and Saglam (2000) suggest that "permanent" capital flows affect both the real and the nominal exchange rate. Hence, it can be posited that the real and nominal appreciation trend of the Colombian peso over the past four years can be explained to some extent by the long-term capital inflows and the declining trend of the country risk premium (EMBI). In this sense it should be noted that the peso appreciated after 2004, while US short-term interest rates were increasing relative to domestic rates (Graph 22).

Although part of the appreciation may be due to the direct effect on foreign currency inflows of the increase in the terms of trade, the latter also influences capital flows by inducing larger FDI (as shown in the first section) and reducing the probability of default of commodity-producing economies.

Monetary policy in Colombia follows an inflation targeting strategy, whereby the exchange rate is a key indicator of monetary conditions and inflationary pressures. Thus the monetary policy stance was influenced by the appreciation induced by the capital flows. Specifically, the appreciation may have delayed the start of the tightening cycle by the central bank. In fact, between 2004 and 2005 short-term interest rates were reduced by 125 basis points, reaching real levels as low as 0.7% by October 2005, even though capacity utilisation was growing throughout this period (Graph 23).

Later, since April 2006, the monetary policy stance has been tightened in spite of the continuing appreciation of the currency, due to the strength of aggregate demand and large increases in the supply of credit. The latter were also influenced by capital flows. The increased demand for domestic deposits by residents, resulting from lower capital outflows, pushed the credit supply by financial intermediaries.

Capital flows also had an impact on the stance of FX policy. Concern about the level of reserves, the permanence of the appreciation and its effects on some tradable sectors led to increased central bank FX intervention. To moderate the magnitude of the appreciation, the central bank introduced discretionary intervention in the FX market in 2004. This intervention was relatively successful until 2006 (Kamil 2007), to the extent that it was not inconsistent with current and expected monetary policy actions (Graph 24).

In 2007, rising inflation due to strong aggregate demand pressures and food price shocks made it clear that the central bank would have to continue raising interest rates. The credibility of the central bank's commitment to inflation targeting hampered the credibility and effectiveness of FX intervention, and as result, portfolio investment flows shot up, discretionary intervention had to be abandoned and some capital account measures were taken to isolate the exchange rate from movements in domestic interest rates, as will be discussed below.

b. Sterilisation mechanisms and consequences

The intervention of the central bank through different mechanisms led to a considerable increase in the supply of primary liquidity in the domestic money market. In spite of the large increase in real money demand (related to capital flows), between 2004 and 2007 the accumulated monetary effects of the FX intervention (Col$ 30.3 trillion) surpassed the growth of the demand for monetary base (Col$ 12.1 trillion). Without sterilisation, this would have pushed short-term interest rates below the policy rate set by the monetary authorities.

Hence, the central bank had to sterilise these excesses of liquidity using the following mechanisms:

- Sale of international reserves to the government, which were used to service and/or prepay public foreign debt.
- Outright sales of government bonds held by the central bank.
- Reduction of the amount of short-term liquidity supplied through repo auctions.
- Increase of government deposits in the central bank.
- Non-reserve deposits of financial institutions at the central bank.

The central bank used a combination of the above-mentioned mechanisms because since 1999 it has not been allowed, by law, to issue its own securities. Thus, it was forced to adjust the monetary base through transitory and permanent sales/purchases of government debt. At the time of the largest FX intervention, the outstanding stock of government paper held by the central bank was not enough to mop up the excesses of liquidity.

The use of the first two mechanisms implied an expansion of the public bond supply, which was willingly absorbed by the financial intermediaries, particularly commercial banks. At the time, the intermediaries expected high capital gains caused by declining inflation, stable or decreasing short-term interest rates and strong capital inflows. As a result, exposure to market risk jumped. In the second quarter of 2006, the central bank shifted its policy stance and turbulence in the international capital markets pushed up sovereign risk premia. Domestic bond prices fell sharply, commercial banks suffered losses and reduced their holdings of government securities in favour of loans. Throughout the second half of 2006, credit supply skyrocketed and lending rates declined at the same time as the central bank was raising its interest rate (Graphs 25, 26 and 27).

The cost of sterilisation has not been a pressing issue because the central bank generates large profits and the opportunity cost of reserve accumulation was not sizeable, at least in the first years of intervention, because the interest rate differential was relatively low. In addition, the expansion in the demand for monetary base reduced the need for sterilisation.

c. Other measures used for managing capital flows

After discretionary FX intervention was abandoned in April 2007, some measures were taken in May to mitigate the impact on the exchange rate from the increases of the policy interest rates. First, the reserve requirement on external debt, widely used in the 1990s, was reactivated in an effort to discourage short-term foreign indebtedness. It requires agents to deposit in the central bank 40% of external loans for a period of six months. The deposit can be denominated in US dollars or Colombian pesos and may be withdrawn at a discount determined by the central bank.

Second, the government put in place a similar requirement on portfolio investment. Third, since the first two measures did not prevent other agents, like pension fund managers, from exploiting arbitrage opportunities in interest rate differentials through forward operations with commercial banks, a cap on the ratio of the gross amount of FX derivatives to the commercial banks' net worth was established.

So far, the measures seem to have worked, as the evidence shows a halt in portfolio investment and a decrease in net debt inflows, and there do not seem to be compensating flows coming through other channels, such as FDI (Table 9). However, the experience of Colombia and other countries with capital controls indicates that their effectiveness wears off the longer the measure is in place.

d. Effect of a more open capital account on the central bank's influence over market interest rates

There is evidence that external factors play an important role in the determination of domestic market interest rates, in addition to the impact of the short-term policy rate. For example, Betancourt et al (2006) show that the EMBI affects deposit interest rates. Therefore, the transmission of monetary policy may be dampened or reinforced by shifts in the sovereign risk premium. Also, Arango et al (2006) find that the domestic public bond yield curve responds to lagged movements in the foreign yield curve and future changes in the policy interest rate, for weekly data sets. However, the effect of an increase of the policy rate on the slope of the yield curve is positive, contrary to the impact predicted by the expectations theory. This is attributed by the authors to a lack of transparency of monetary policy. Nevertheless, it is also consistent with the fact that, for years, only the long end of the curve was liquid, so increases in short rates raised the cost of borrowing short-term and buying long-term bonds.

e. Financial stability issues

The Colombian experience has shown that capital flows may change abruptly and that domestic financial markets are vulnerable to this kind of shock. In fact, after the "sudden stop" of 1998–99, a financial crisis developed that was related, among other things, to regulatory failures and an inadequate structure of some financial institutions (Uribe and Vargas (2003)). Despite recent improvements in financial regulation (regarding market and credit risks), vulnerabilities remain:

- During some episodes of external shocks, many agents tended to take the same position, leading to heightened volatility of flows and prices. As a consequence, financial stability may be weakened by the increased fluctuations of the prices of some assets and liabilities held by financial intermediaries.[4] Further opening of the capital account could help solve this problem, as long as foreign investors are less procyclical than domestic ones. Allowing the exchange rate to float may also help prevent rapid increases in money and credit that may fuel asset price bubbles.
- The reporting and valuation of new financial products and practices is lagging in Colombia. This, in addition to the presence of special purpose vehicles, may hide some risks assumed by the financial sector. These concerns could be more serious if further opening of the capital account were considered.

5. Concluding remarks

- In the last several years Colombia has seen a widening of the current account deficit, associated with large increases in investment, despite rising saving ratios.
- This has been reflected in a surge of capital inflows, especially foreign direct investment flows. In this way, this episode is different from that in the 1990s, which had a strong external debt component. The rise in FDI is particularly strong in the mining and oil sectors and is associated with the high external prices for these products and with an improvement in the conditions for FDI into these sectors. The increase in FDI can also be explained by the purchase of Colombian companies (in other sectors) by foreign investors.

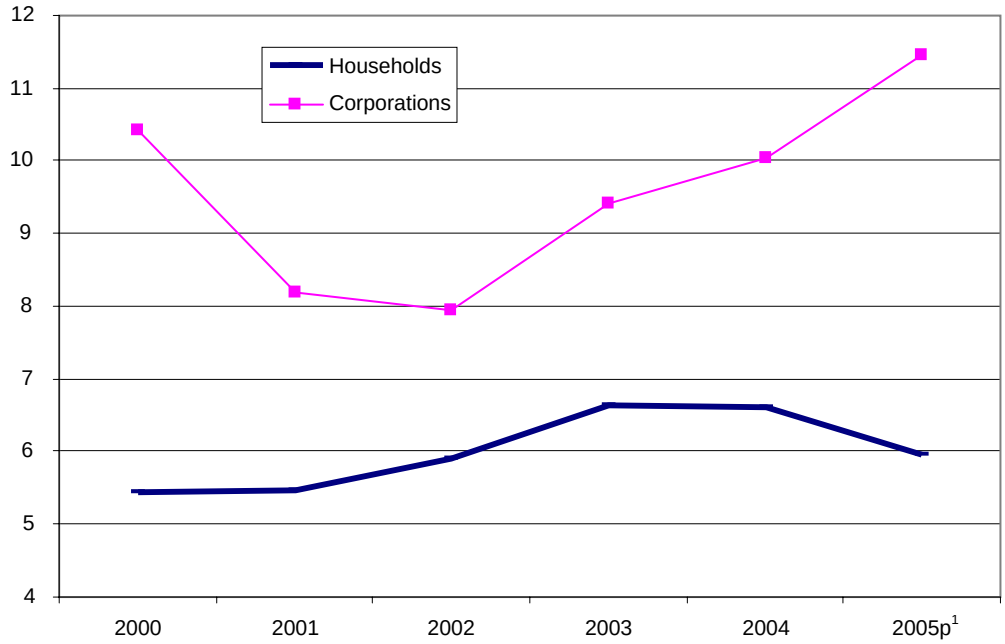
[4] Tenjo et al (2007) show that asset price fluctuations in Colombia have been associated with movements of external variables, such as the terms of trade and capital flows.

- Even though portfolio investment both onshore and offshore is not very large compared to other flows, domestic capital markets show vulnerability to external events due to their structure. This forces the central bank and the government to try to re-establish some order in the markets.
- Capital flows do not seem to have an impact on the size of the assets and liabilities of financial institutions. A large portion of capital flows are not intermediated by the financial institutions, and even in that case there is no evidence that foreign-owned banks are more active in the intermediation of foreign capital flows.
- Capital flows have affected the stance of monetary policy to the extent that the appreciation of the exchange rate has helped reduce inflationary pressures. This, added to the presence of a negative output gap, made it possible for the central bank to engage in FX intervention at the same time that it was easing its monetary stance between 2004 and 2005. However as the output gap closed and inflationary pressures began to emerge, sterilised intervention lost effectiveness. In addition, the sterilisation of the monetary effect of intervention in the FX market increased the exposure of the financial system to market risk. In this context, the management of capital flows became a source of concern for the monetary authorities. Hence in the last year discretionary sterilised intervention was abandoned and restrictions were imposed on capital inflows originating in debt and portfolio flows.
- Financial stability has been weakened by the increased fluctuations in the prices of some assets and liabilities held by financial intermediaries as a consequence of shocks to capital flows. Further opening of the capital account could help solve this problem, as long as foreign investors are less procyclical than domestic ones. Allowing the exchange rate to float may also help prevent rapid increases in money and credit that may affect financial stability.

Graph 1

Saving ratios of households and corporations

As a percentage of GDP



[1] p = preliminary data.

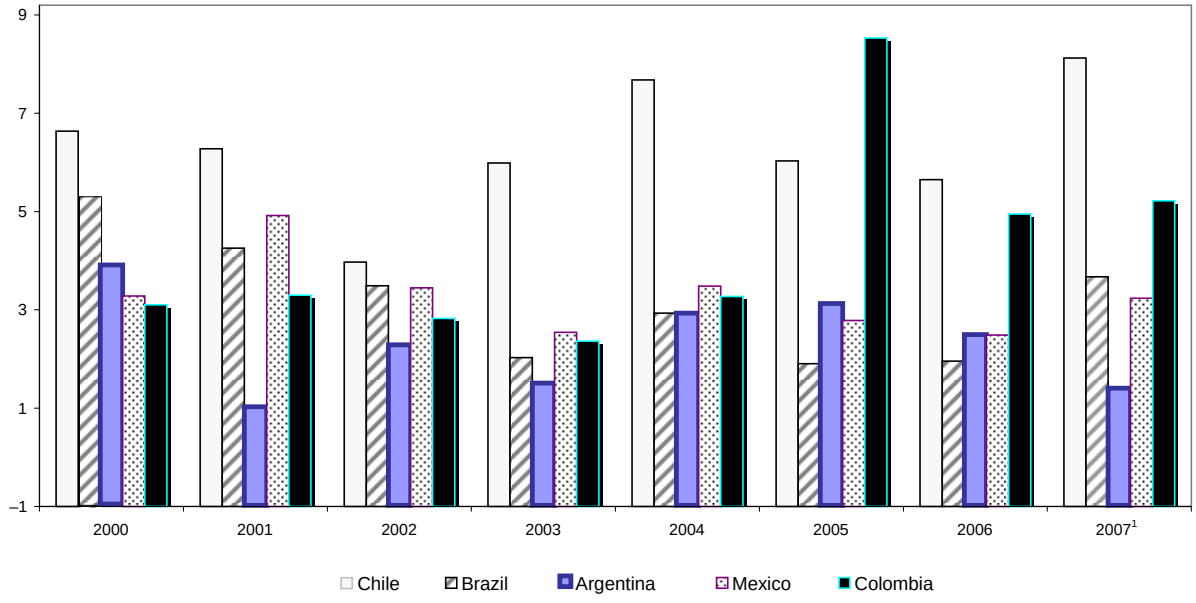
Calculations based on nominal aggregates. Corporations include both public and private firms.

Source: DANE.

Graph 2

Foreign direct investment for selected countries

As a percentage of GDP



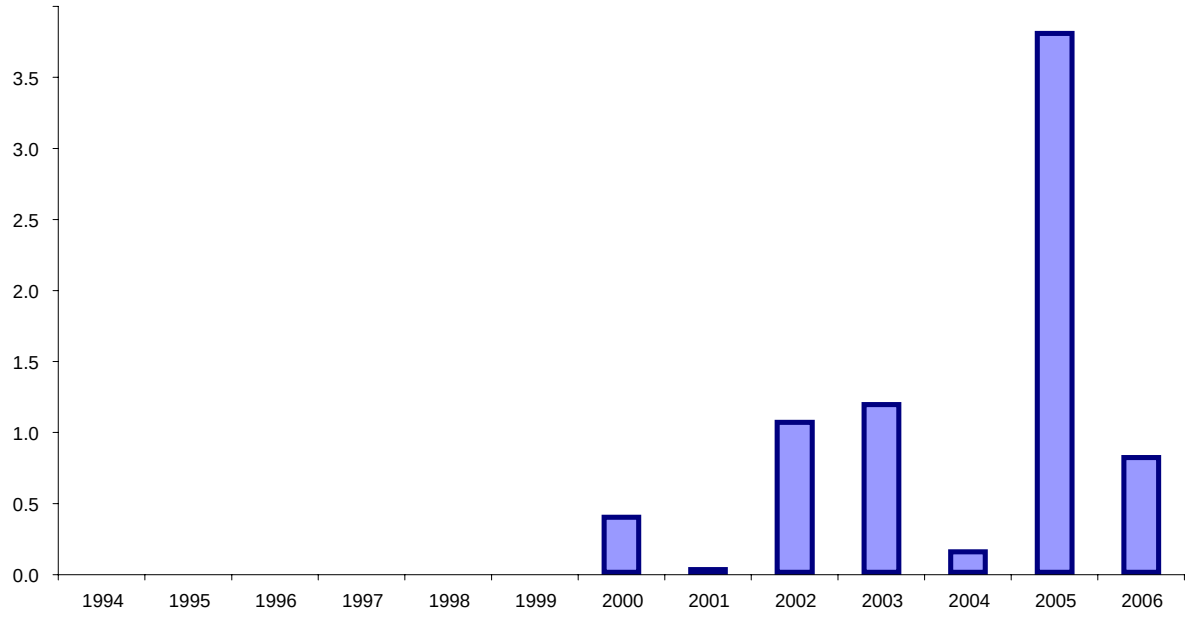
[1] Data from January to June only.

Source: Balance of Payments, Banco de la República.

Graph 3

Colombian investment abroad

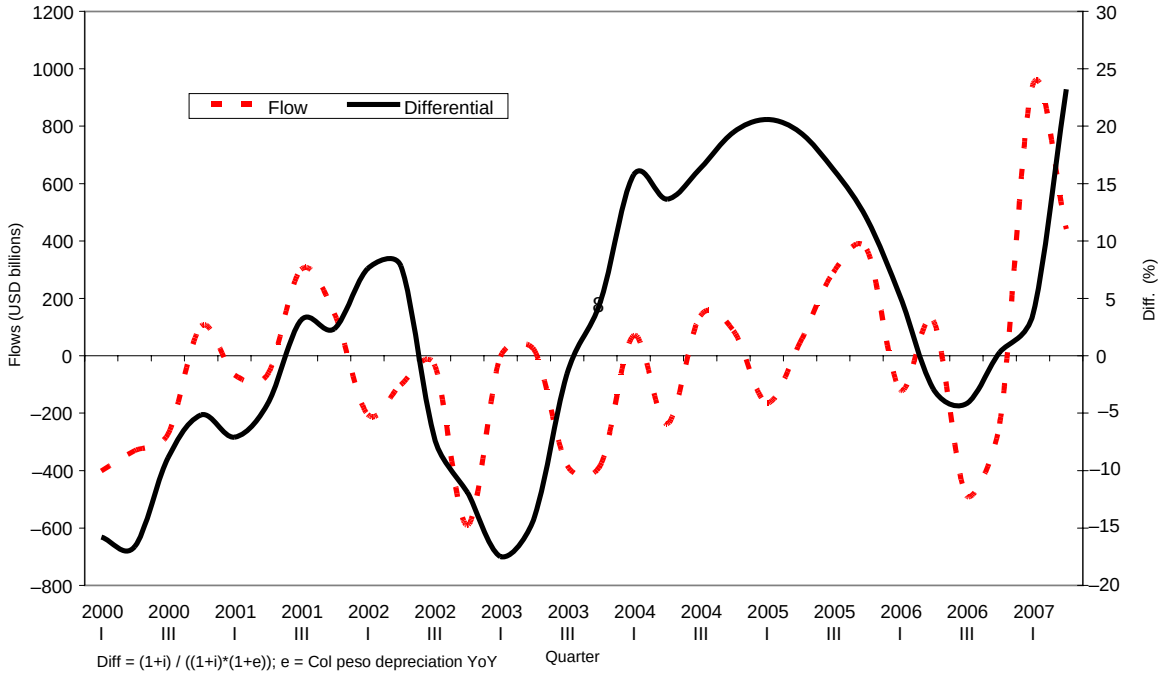
As a percentage of GDP



Source: Balance of Payments, Banco de la República.

Graph 4

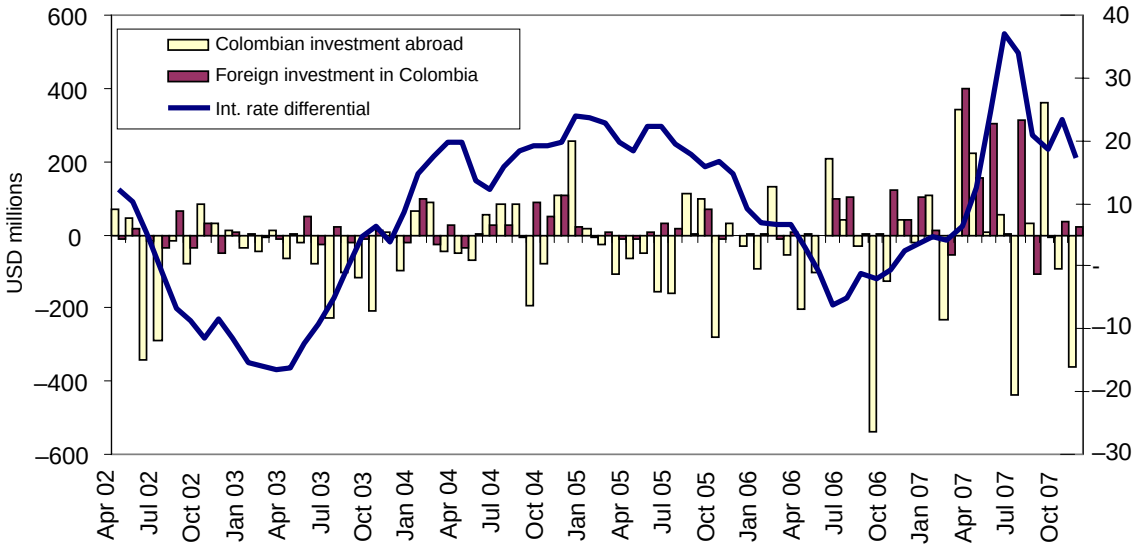
External and internal interest differential vs net private debt flows



Source: Research Dpt, Banco de la República.

Graph 5

Portfolio investment: foreign investment in Colombia and Colombian investment abroad[1] and interest differential[2]



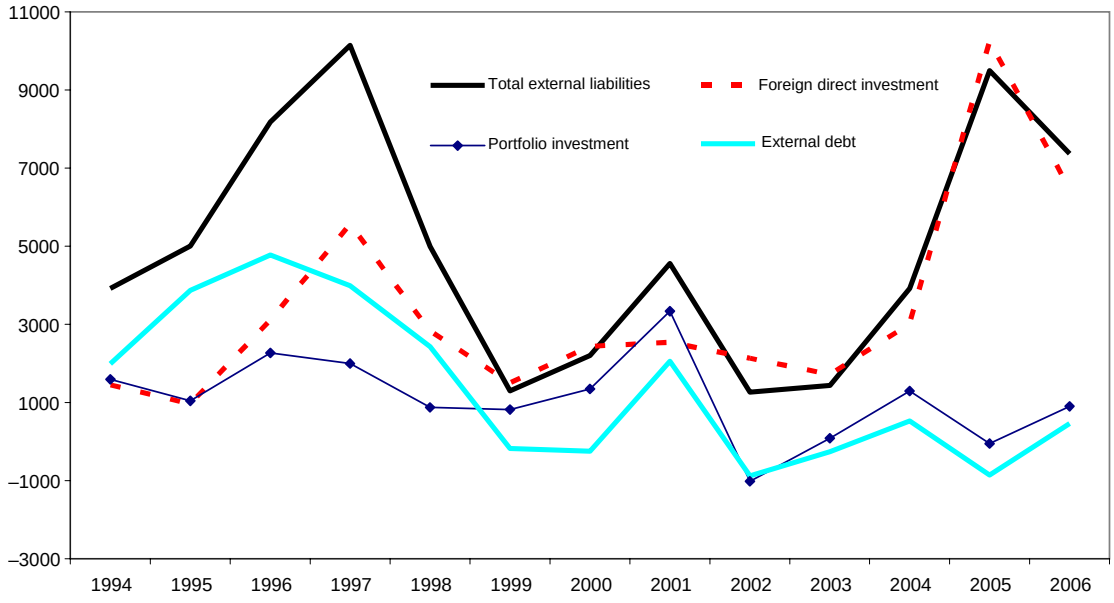
[1] Data from Balance of Foreign Exchange Cash Transactions. [2] Interest rate differential = (1+i)/[(1+i*)(1+e)]–1; 90-day CD rates in Colombia and the United States.

Source: Banco de la República.

Graph 6

Financial account – liabilities (net of government assets)

USD millions

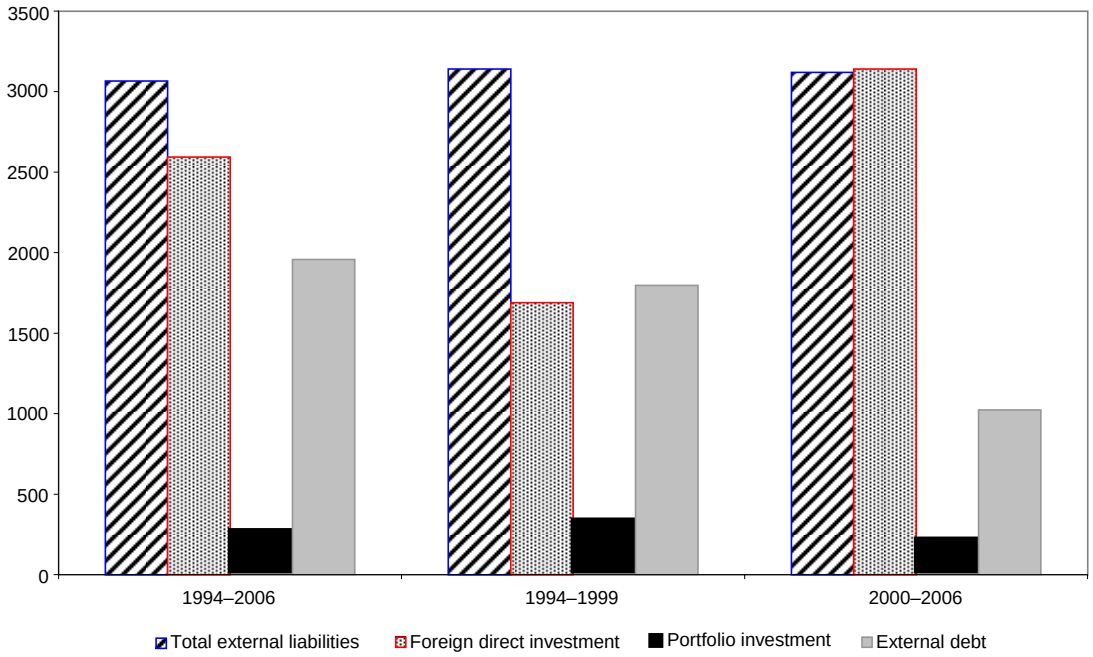


Source: Balance of Payments, Banco de la República.

Graph 7

Net capital inflows volatility (excl government assets)

Standard deviation, in USD millions

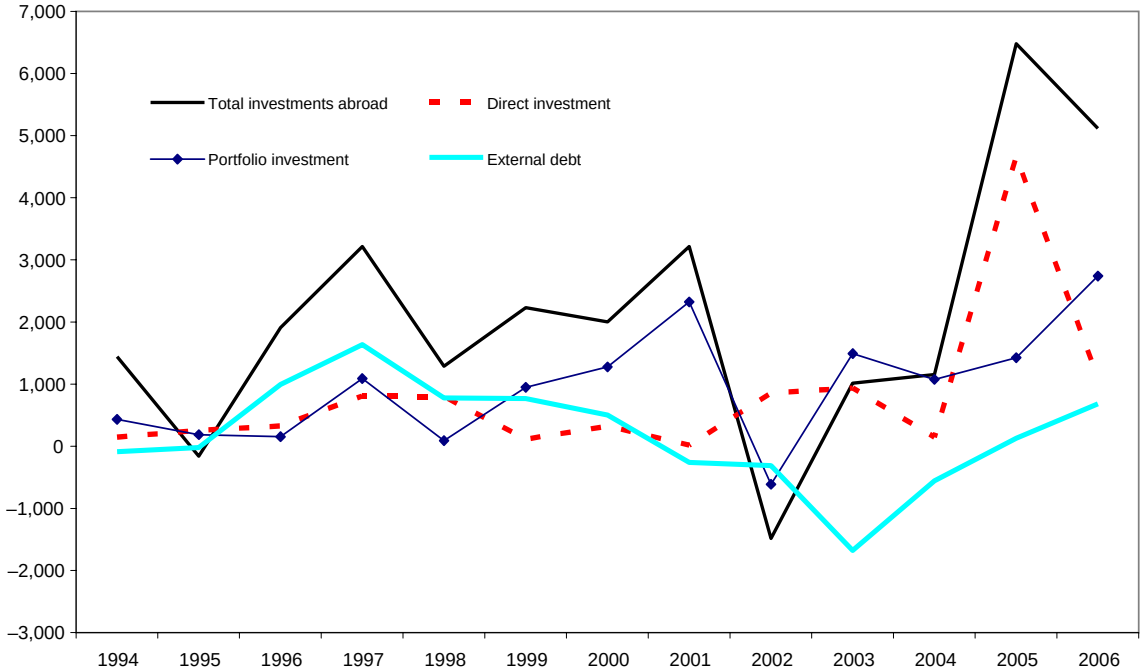


Source: Balance of Payments, Banco de la República.

Graph 8

Financial account – assets (excl government assets)

USD millions

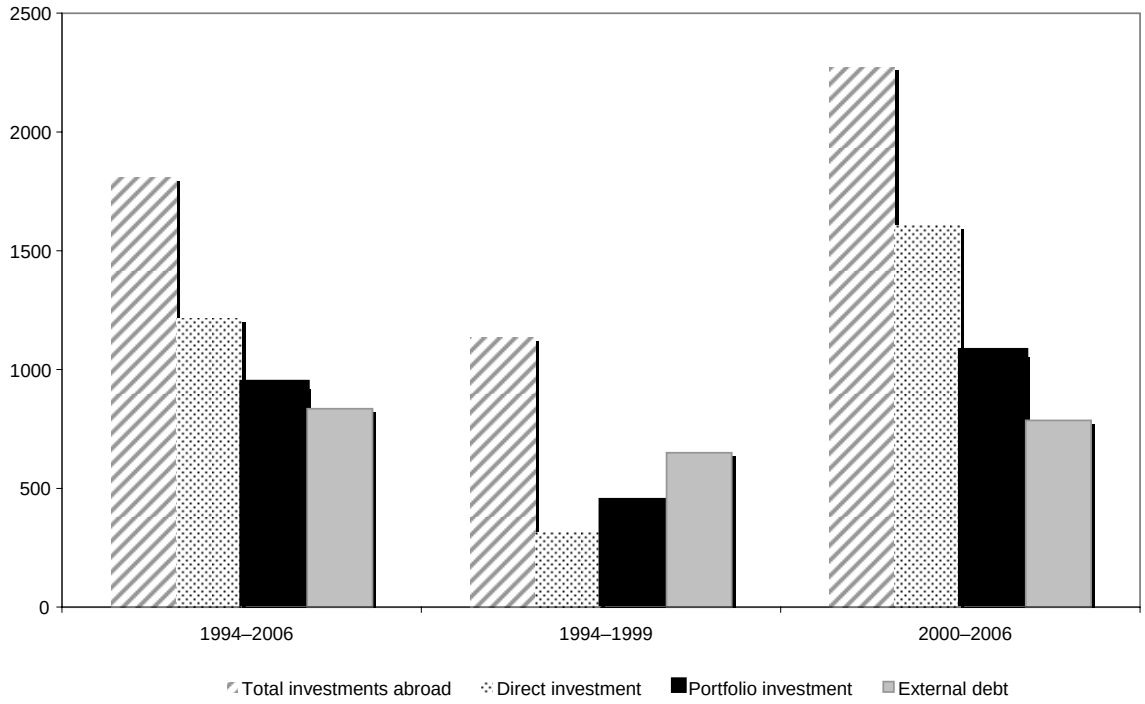


Source: Balance of Payments, Banco de la República.

Graph 9

Net capital outflows volatility (excl government assets)

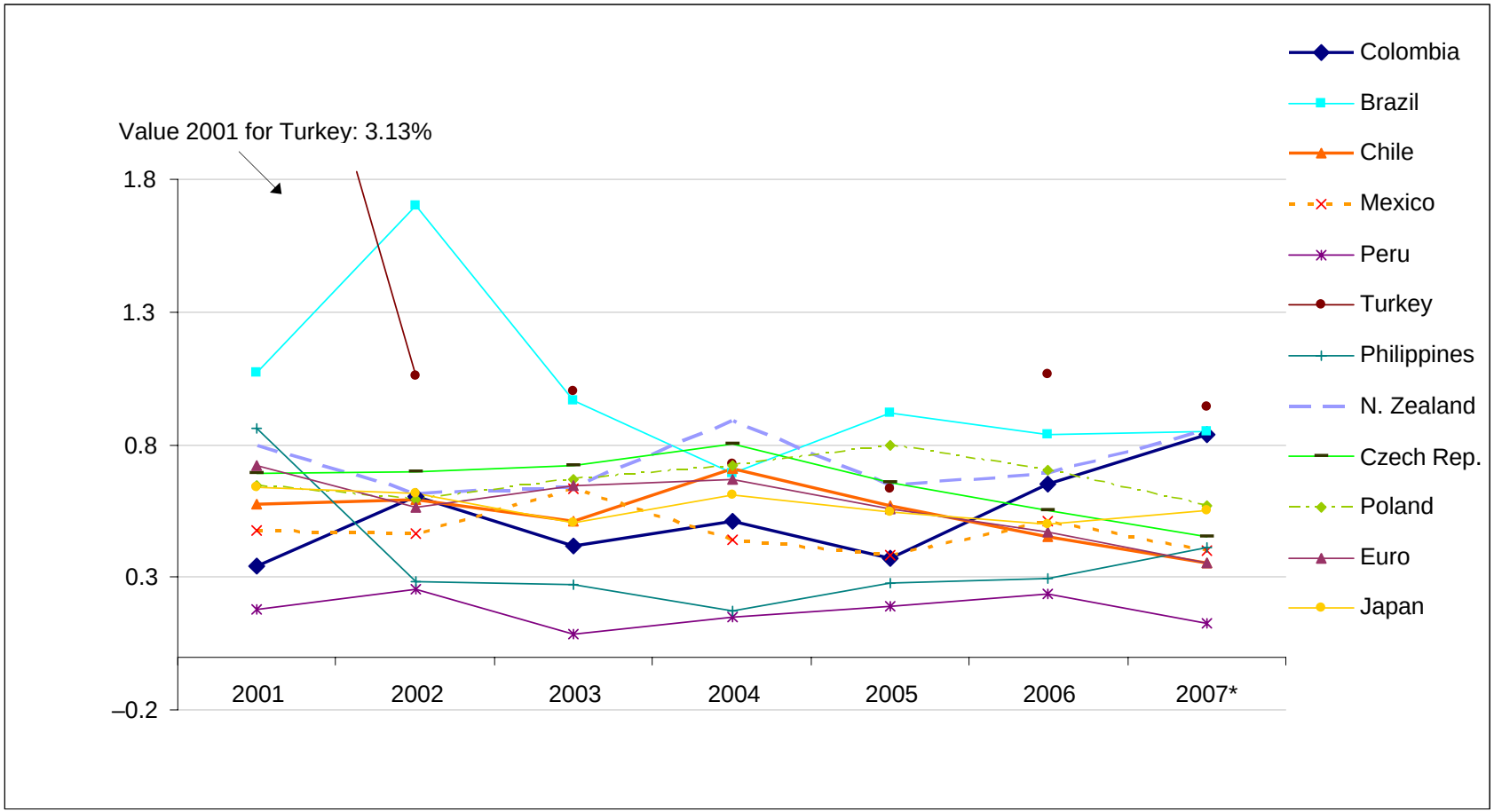
Standard deviation, in USD millions



Source: Balance of Payments, Banco de la República.

Graph 10

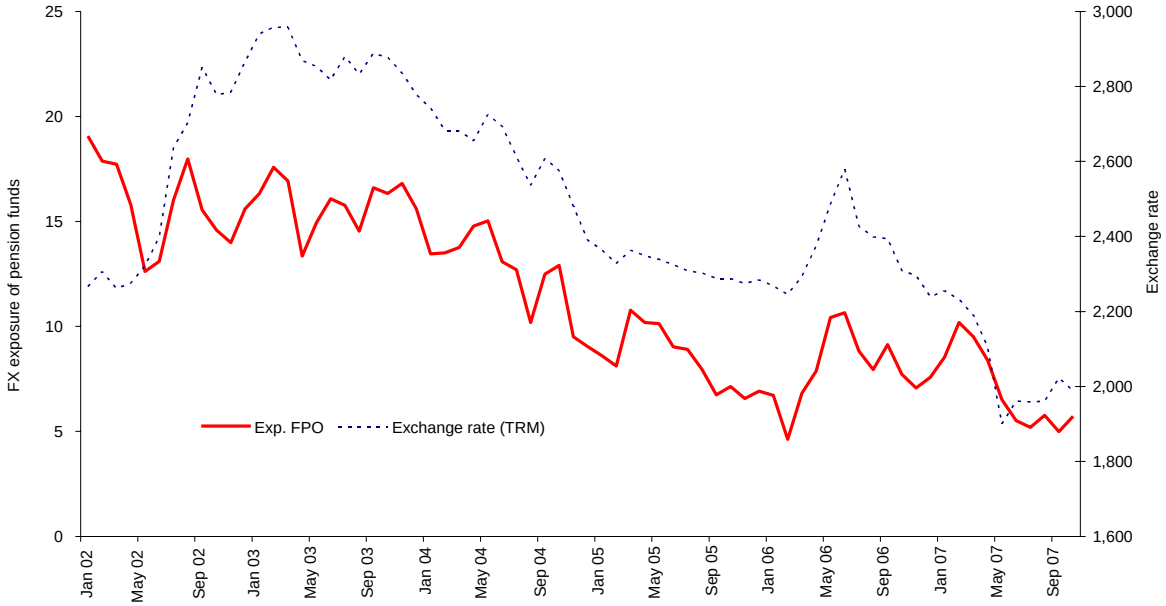
Volatility of exchange rate standard division



Source: Lega et al (2007).

Graph 11

FX exposure of pension funds and the exchange rate



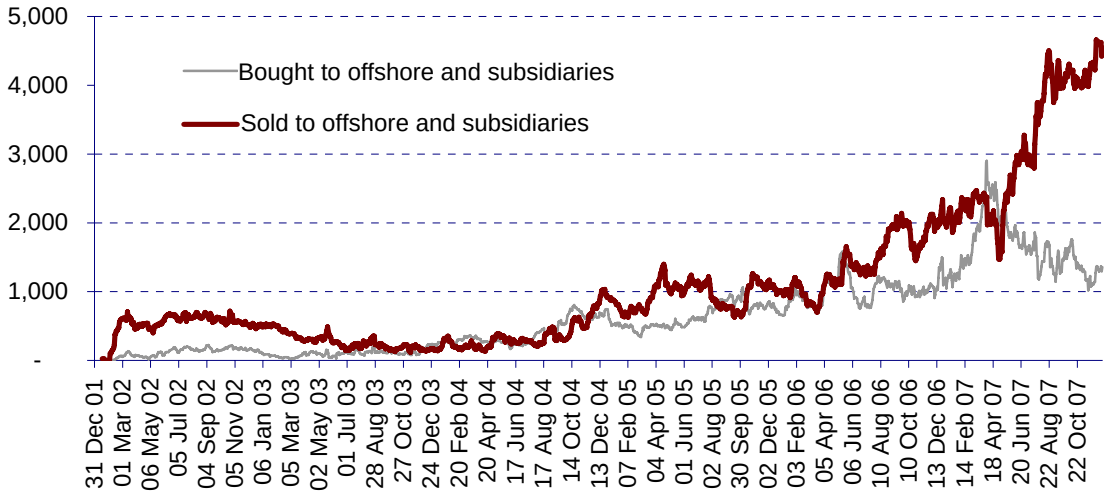
FX exposure: value of the net FX position of pension funds as a share of the pension fund portfolio.

Source: Banco de la República.

Graph 12

Outstanding amounts of forwards bought and sold by financial intermediaries to and from agents and subsidiaries[1]

USD millions

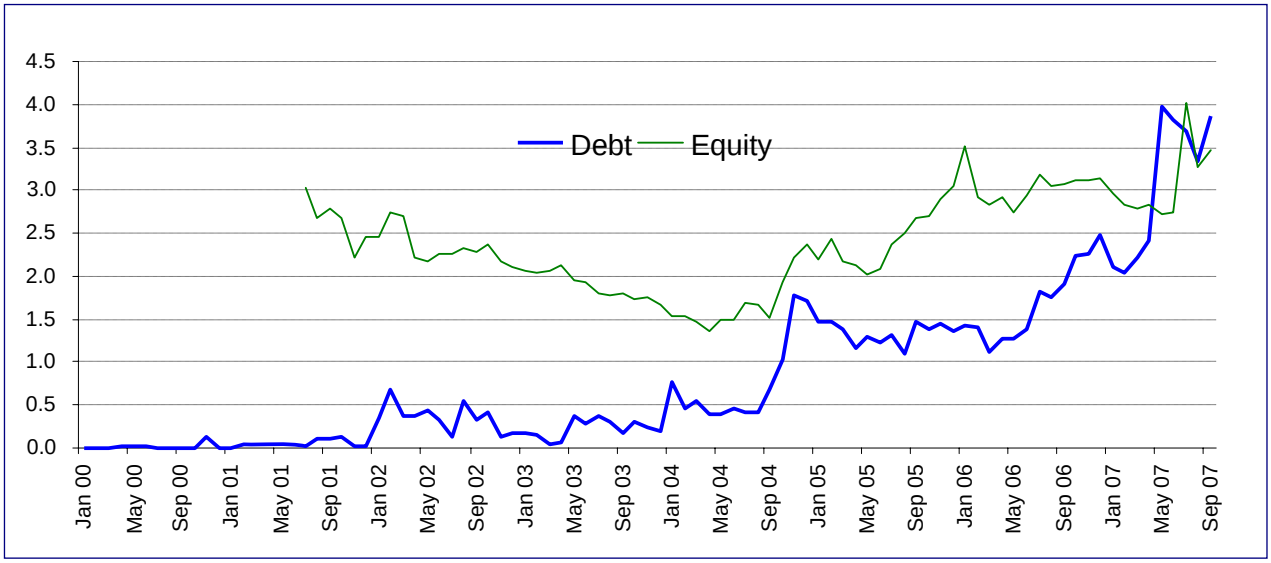


[1] Includes local and offshore subsidiaries.

Source: Banco de la República.

Graph 13

Proportion of outstanding public debt bonds and equities[1] in the hands of local investment funds

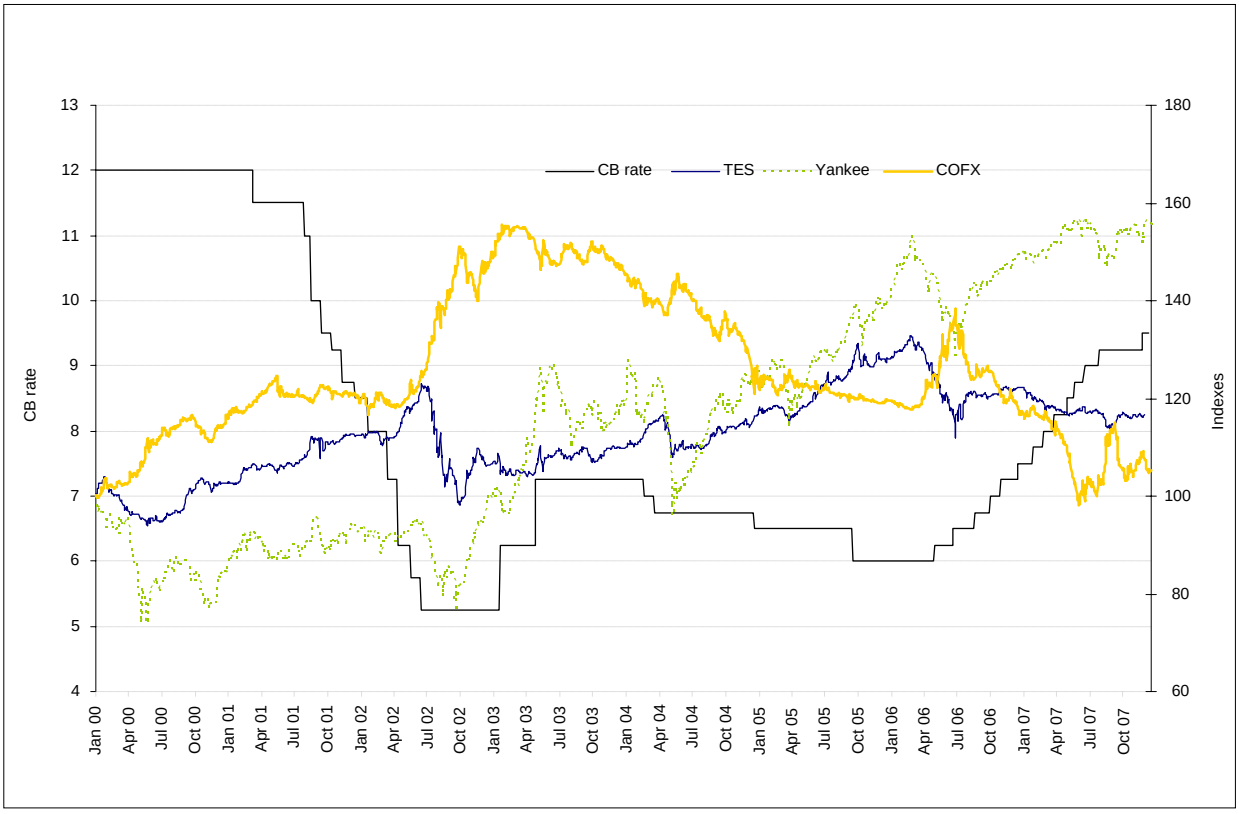


[1] Up to September of 2004, shares were valued at the average price of acquisition. Afterwards, they are valued at market prices. Dollar values are obtained at end-month market exchange rates.

Source: Banco de la República.

Graph 14

Colombian financial asset market indices and central bank interest rate

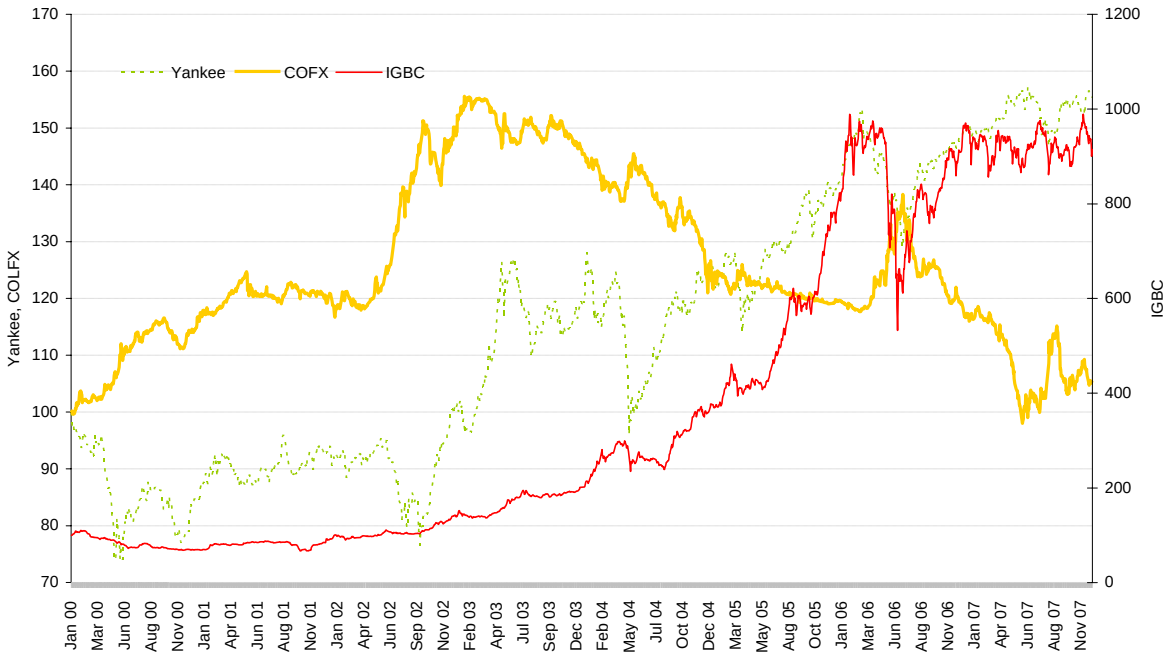


Source: Banco de la República.

Graph 15

Colombian financial markets

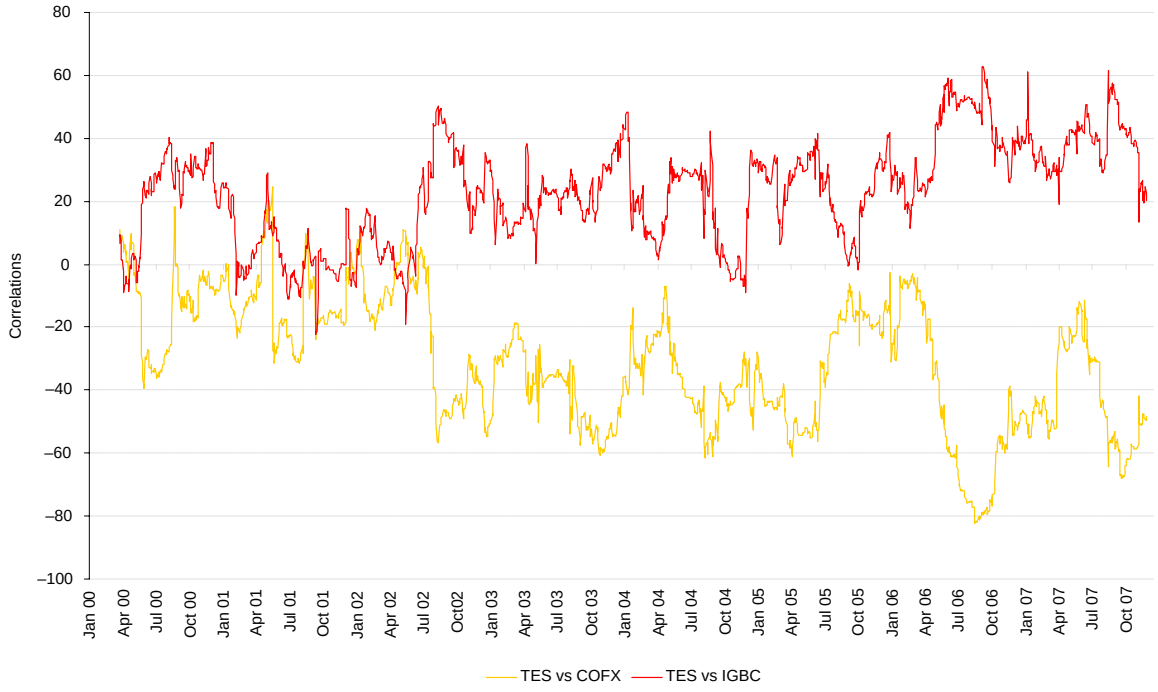
Indices



Source: Banco de la República.

Graph 16

Domestic market return correlation

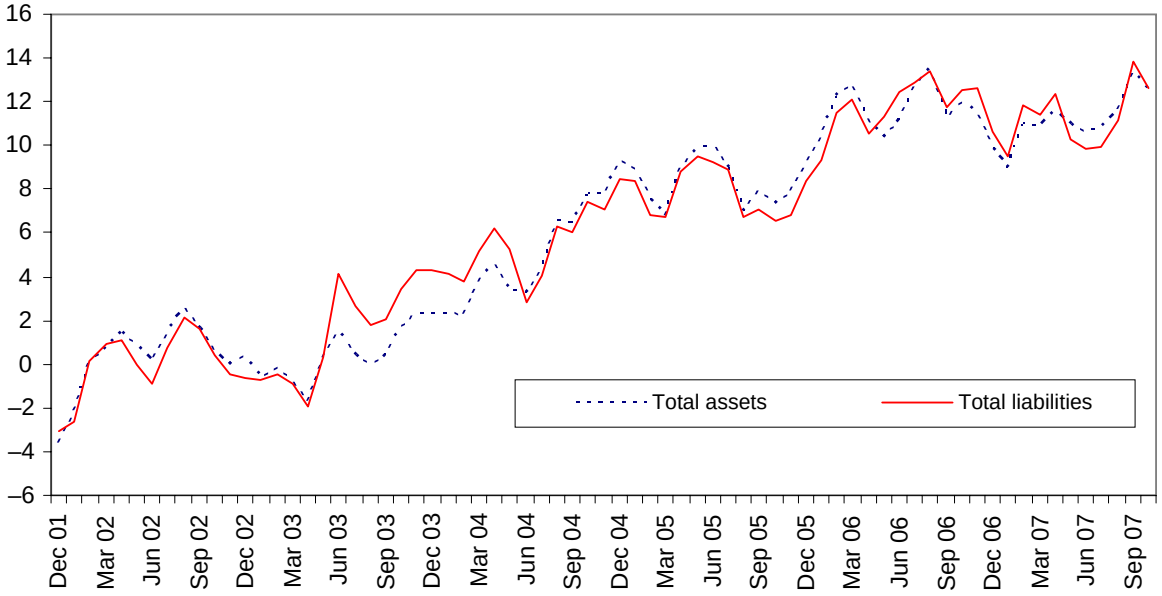


Source: Banco de la República.

Graph 17

Assets and liabilities of the financial system

Annual real growth rate, in per cent

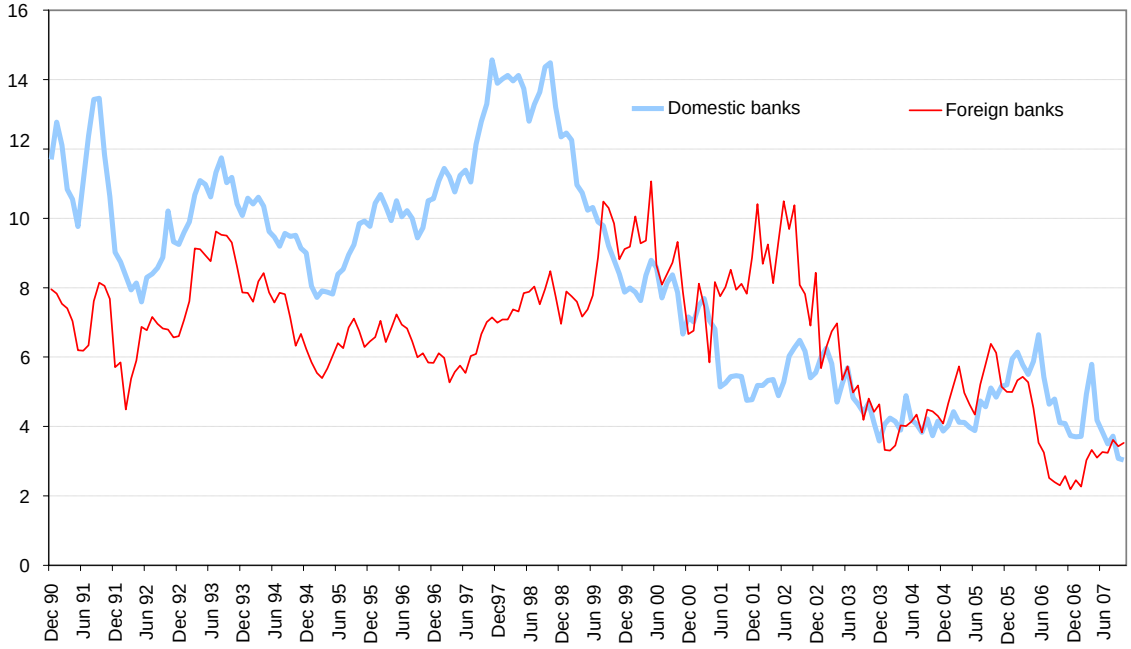


Source: Banco de la República.

Graph 18

Capital flows intermediated by commercial banks: banks' foreign indebtedness/total assets

Selected banks, 1990–2007

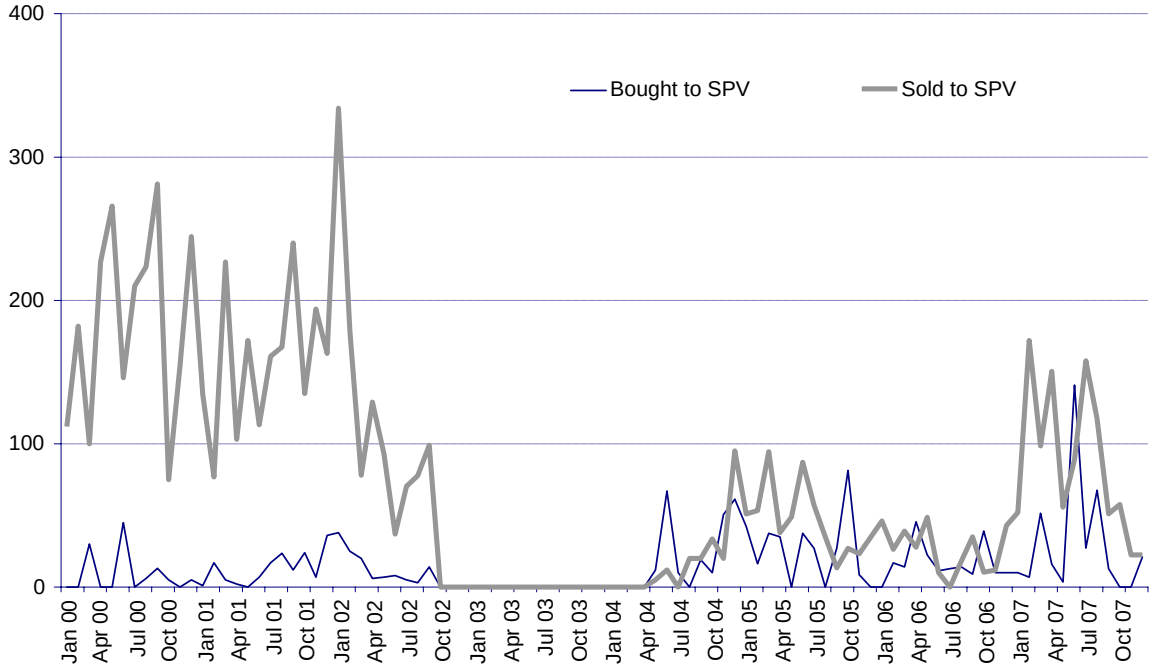


Source: Banco de la República.

Graph 19

Monthly amount of forward turnover: financial intermediaries with non-financial SPVs

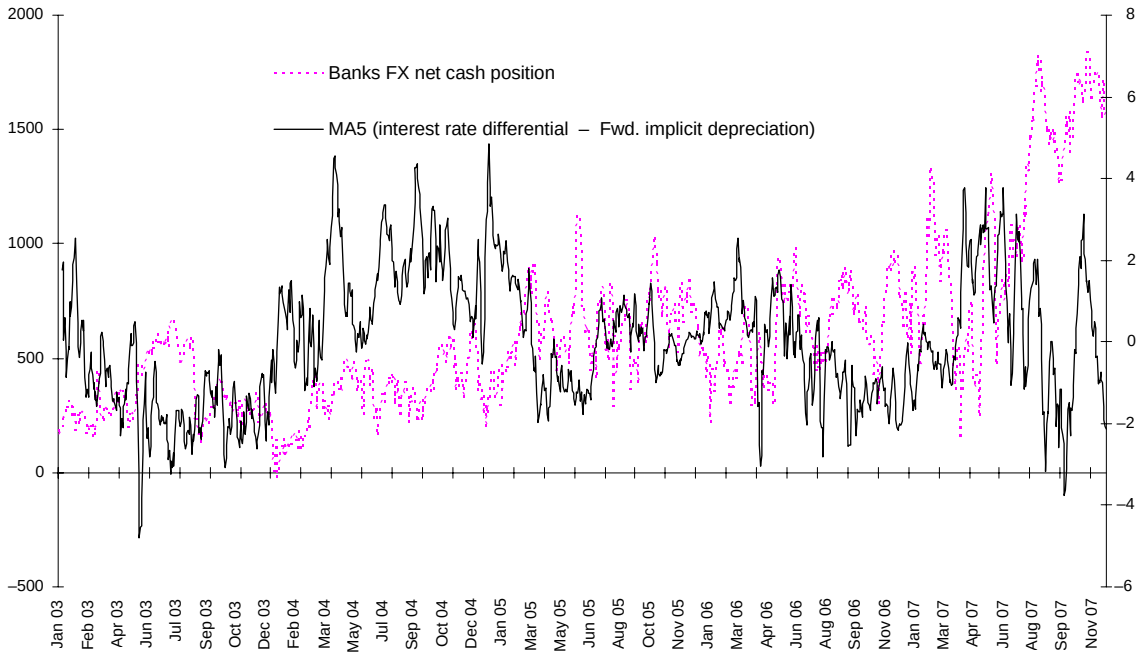
USD millions



Source: Banco de la República.

Graph 20

Banks' FX net cash position and deviations of forward peso/dollar from interest rate differentials

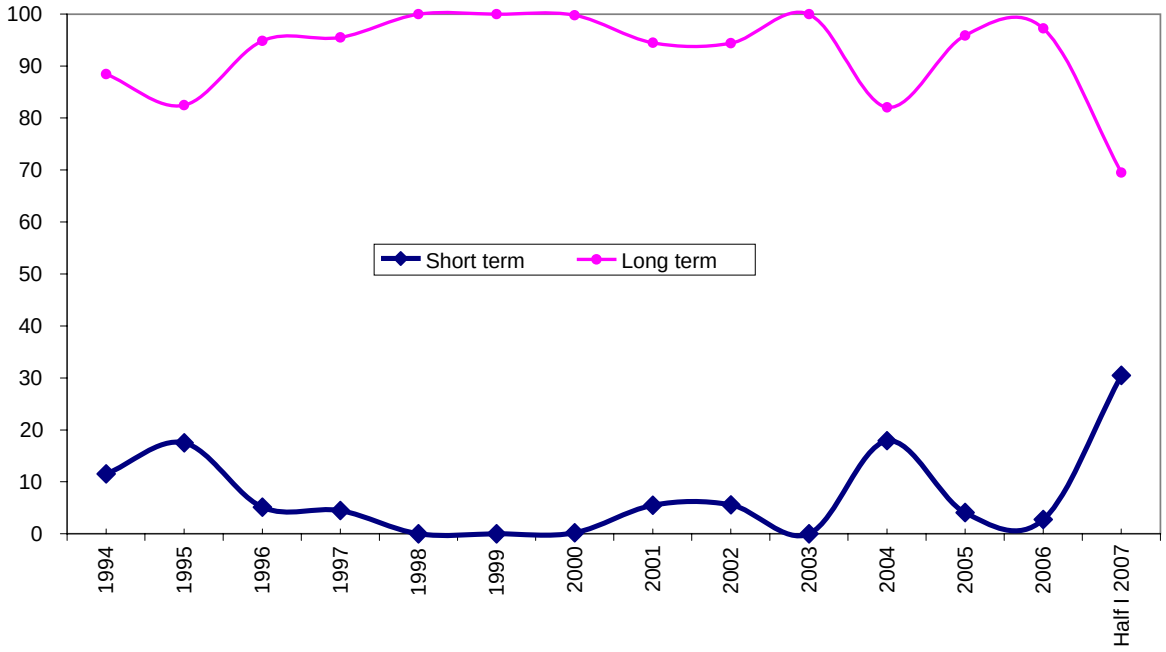


Source: Banco de la República.

Graph 21

Colombia: B-o-p total gross capital inflows

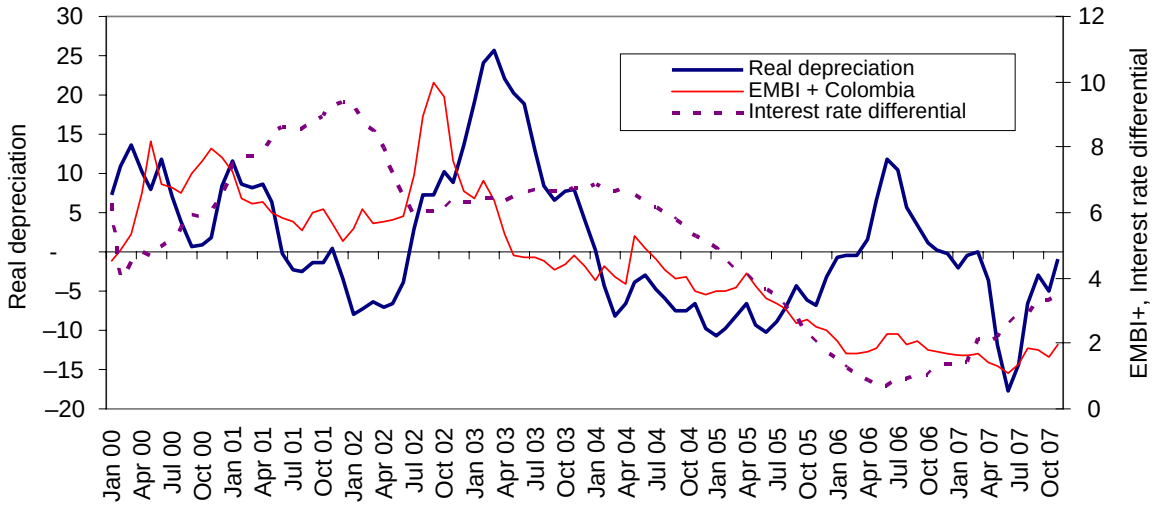
Structure by term, in per cent



Source: Banco de la República.

Graph 22

Real depreciation,[1] EMBI+ Colombia[2] and interest rate differential[3]

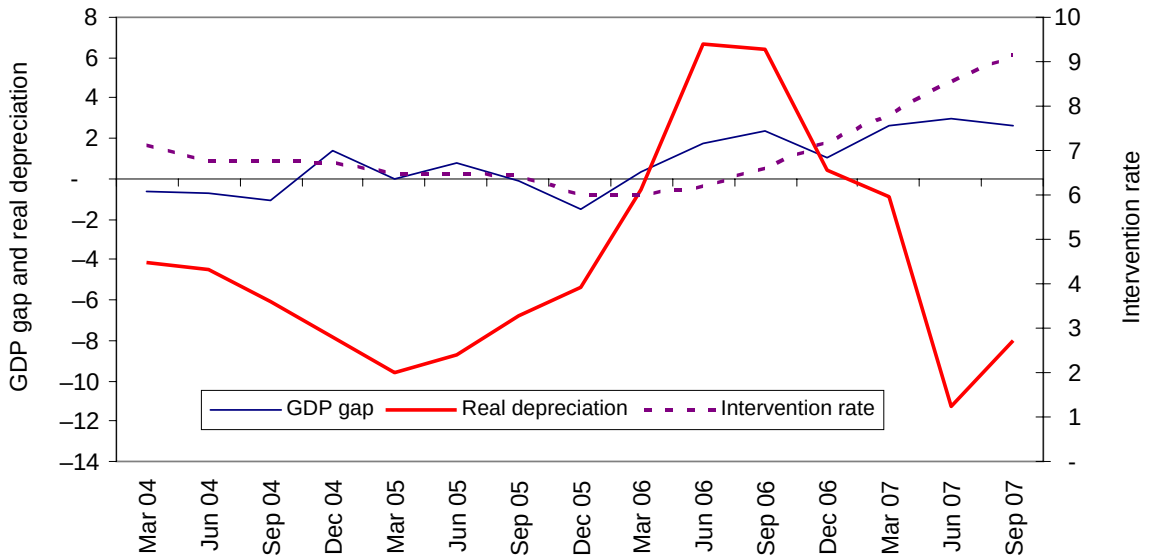


[1] Annual change of ITCR-IPP(NT). [2] Defined in percentage points, not basis points. [3] Calculated as $\{(1+i)/[(1+i^*)]-1\}$, where i is the interest rate on 90-day deposit certificates (monthly average) and i^* is the average rate on three-month negotiable certificates of deposit (secondary market).

Sources: Federal Reserve; Bloomberg; Banco de la República.

Graph 23

GDP gap, real depreciation[1] and intervention rate[1]

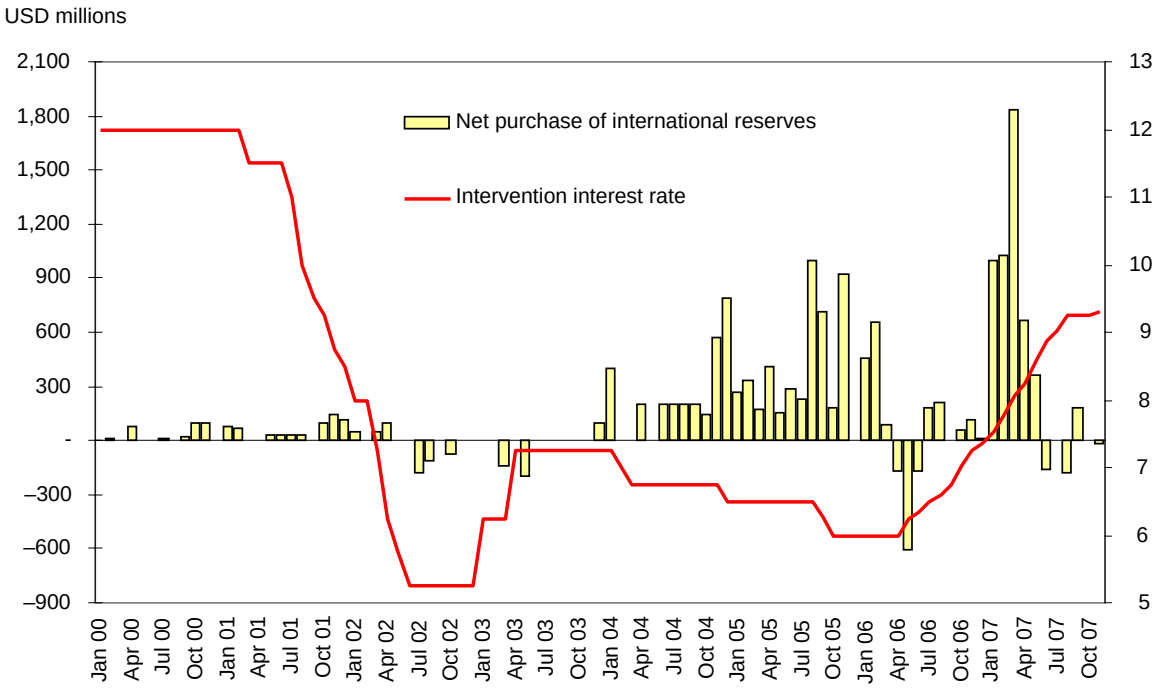


[1] Average of monthly data.

Source: Banco de la República.

Graph 24

Net purchase of international reserves (monthly data) and central bank interest rate

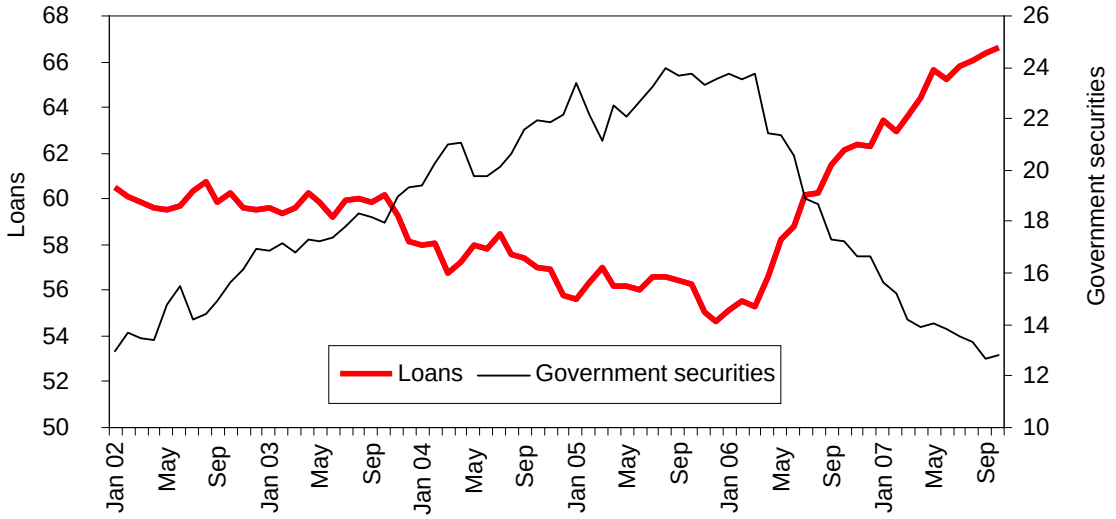


Source: Banco de la República.

Graph 25

Investments of the financial system in government securities and gross loan portfolio

Share of total assets, in per cent

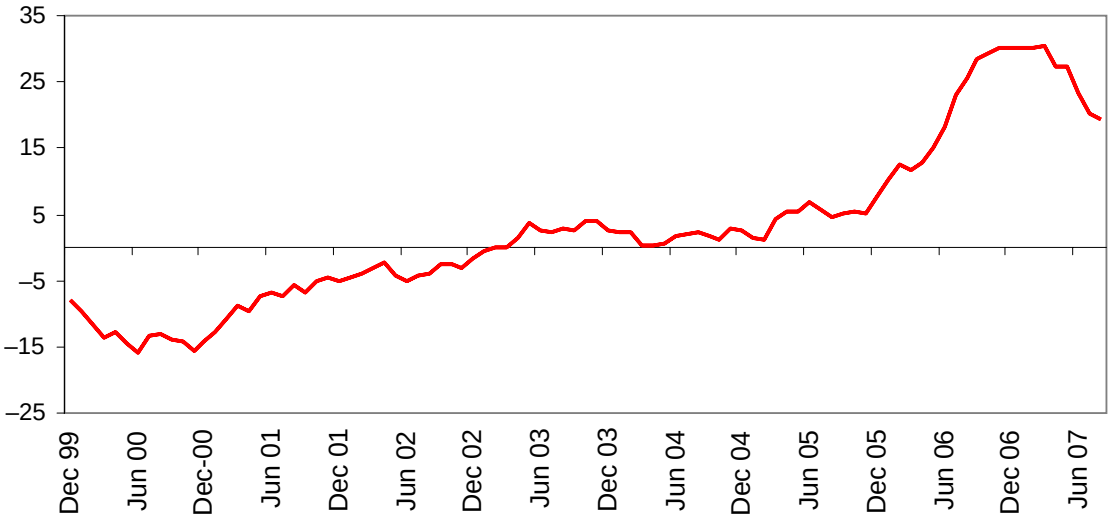


Sources: Banco de la República; Superintendencia Financiera de Colombia.

Graph 26

Financial system loan portfolio

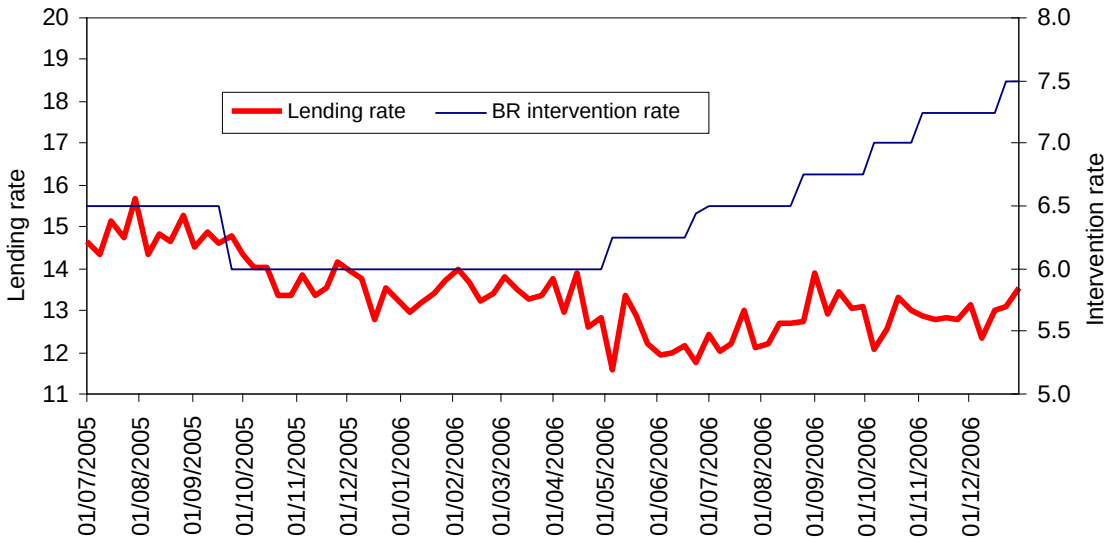
Annual real growth rate, in per cent



Sources: Banco de la República; DANE; Superintendencia Financiera de Colombia.

Graph 27

Nominal interest rates: financial system lending rate and central bank intervention rate



Sources: Banco de la República; DANE; Superintendencia Financiera de Colombia.

Table 1

Current account

As a percentage of GDP

	Colombia	Peru	México	Chile	Brazil	Turkey	NIAE	CEE
2000	0,9	–2,9	–3,2	–1,2	–3,8	–5,0	3,5	–5,3
2001	–1,3	–2,2	–2,8	–1,6	–4,2	2,3	4,7	–2,7
2002	–1,7	–2,0	–2,2	–0,9	–1,5	–0,8	5,1	–3,5
2003	–1,2	–1,6	–1,3	–1,0	0,8	–3,4	6,9	–4,5
2004	–0,9	0,0	–1,0	2,2	1,8	–5,2	6,5	–5,9
2005	–1,5	1,4	–0,6	1,1	1,6	–6,2	5,5	–5,2
2006	–2,2	2,8	–0,2	3,6	1,3	–7,9	5,6	–6,6
2007 (June)	–3,9	0,9	–0,8	8,0	0,7	n.a.	5,4	–7,3

NIAE = newly industrialised Asian economies: Hong Kong SAR, Korea, Singapore, Taiwan (China).

CEE = central and eastern Europe.

Sources: IMF; central banks; national institutes of statistics.

Table 2

Colombia: current account balance, saving and investment

As a % of GDP

	2000	2001	2002	2003	2004	2005	2006
Saving – investment = current account balance	**0,9**	**–1,3**	**–1,7**	**–1,2**	**–0,9**	**–1,5**	**–2,2**
A. Total saving	**14,6**	**13**	**13,6**	**16,0**	**18,3**	**19,3**	**21,2**
Public	4,2	3,5	2,9	4,2	5,3	6,7	6,2
Private	10,4	9,5	10,7	11,7	13,0	12,6	14,9
B. Total investment	**13,7**	**14,3**	**15,3**	**17,2**	**19,2**	**20,8**	**23,4**
Public	7,3	6,7	6,5	7,0	6,6	6,7	7,2
Private	6,4	7,6	8,7	10,2	12,6	14,1	16,3

Sources: Banco de República; Ministry of Finance; DNP.

Table 3

Total investment

As a percentage of GDP

	Colombia	Peru	México	Chile	Brazil	Turkey	NIAE	CEE
2000	13,7	20,2	23,8	21,9	18,3	24,5	28,4	25,0
2001	14,3	18,8	20,8	22,1	18,0	16,8	25,3	22,0
2002	15,3	18,8	20,6	21,7	16,2	21,3	24,7	22,5
2003	17,2	18,8	20,5	21,1	15,8	22,8	24,7	22,9
2004	19,2	18,9	22,0	20,1	17,1	25,7	26,4	24,5
2005	20,8	18,6	21,7	22,4	16,0	24,8	25,8	23,9
2006	23,5	21,0	22,0	20,4	16,8	23,9	25,9	24,6

NIAE = newly industrialised Asian economies: Hong Kong SAR, Korea, Singapore, Taiwan (China).

CEE = central and eastern Europe.

Sources: IMF; central banks; national institutes of statistics.

Table 4

Saving

As a percentage of GDP

	Colombia	Peru	México	Chile	Brazil	Turkey	NIAE	CEE
2000	14,6	17,3	20,7	20,7	14,5	19,5	31,9	19,7
2001	12,9	16,6	18,0	20,5	13,8	19,1	30,0	19,2
2002	13,6	16,8	18,4	20,8	14,7	20,5	29,8	19,0
2003	16,0	17,3	19,2	20,1	16,5	19,4	31,6	18,4
2004	18,3	19,0	21,0	22,2	18,9	20,5	32,9	18,7
2005	19,3	20,0	21,1	23,5	17,6	18,6	31,6	18,7
2006	21,2	23,7	21,8	24,0	18,0	16,0	31,6	18,2

NIAE = newly industrialised Asian economies: Hong Kong SAR, Korea, Singapore, Taiwan (China).

CEE = central and eastern Europe.

Sources: IMF; central banks; national institutes of statistics.

Table 5

Financing of the current account

Colombia: balance of payments

USD millions	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007[1]
Current account	–3.674	–4.528	–4.642	–5.751	–4.858	671	770	–1.088	–1.357	–974	–906	–1.881	–3.057	–6.500
% of GDP	**–4.4**	**–4.9**	**–4.8**	**–5.4**	**–4.9**	**0.8**	**0.9**	**–1.3**	**–1.7**	**–1.2**	**–0.9**	**–1.5**	**–2.2**	**–3.8**
1. Financial account (A + B + C + C)	**3.393**	**4.560**	**6.683**	**6.587**	**3.314**	**–555**	**59**	**2.447**	**1.304**	**657**	**3.205**	**3.230**	**2.799**	**10.888**
A. Net foreign direct investment	**1.298**	**712**	**2.784**	**4.753**	**2.033**	**1.392**	**2.111**	**2.526**	**1.277**	**783**	**2.873**	**5.578**	**5.365**	**6.762**
Assets	–149	–256	–328	–809	–796	–116	–325	–16	–857	–938	–142	–4.662	–1.098	–946
Liabilities	1.446	968	3.112	5.562	2.829	1.508	2.436	2.542	2.134	1.720	3.016	10.240	6.463	7.708
B. Net external debt	**1.871**	**4.389**	**4.240**	**2.499**	**2.027**	**–934**	**–876**	**1.734**	**–579**	**–60**	**–80**	**–3.206**	**–2.221**	**3.655**
Public sector	–1.251	1.372	737	73	1.899	901	452	1.433	350	346	–286	–3.006	–908	2.284
Private sector	3.122	3.017	3.504	2.425	128	–1.835	–1.329	301	–929	–406	206	–200	–1.314	1.371
Long-term	2.756	2.070	3.282	2.712	902	–505	–1.150	–397	–1.341	–1058	–986	50	–277	898
Short-term	366	947	222	–286	–774	–1.330	–179	699	412	652	1.193	–250	–1.037	473
C. Portfolio investment	**247**	**–305**	**208**	**358**	**–277**	**–773**	**–896**	**–1.912**	**415**	**–1.137**	**–74**	**87**	**–400**	**471**
Assets	–231	–470	–84	–234	–12	–746	–913	–1.872	399	–1.117	–454	–27	–845	471
Liabilities	478	165	292	593	–265	–27	17	–41	16	–20	380	114	445	0
D. Other private assets	**–24**	**–236**	**–549**	**–1.022**	**–469**	**–241**	**–280**	**99**	**191**	**1.071**	**486**	**771**	**56**	**0**
2. Errors and omissions	**480**	**–30**	**–321**	**–559**	**154**	**–430**	**41**	**–140**	**191**	**133**	**242**	**380**	**280**	**227**
3. Change in international reserves	**199**	**2**	**1.721**	**277**	**–1.390**	**–315**	**870**	**1.218**	**138**	**–184**	**2.541**	**1.729**	**23**	**4.615**

[1] Forecast.

Source: Banco de la República.

Table 6

Oil and mining investment and international prices

	Oil sector		Mining sector	
	FDI[1]	**Price**[2]	**FDI**[1]	**Price (coal)**[3]
2000	–383,9	28,2	506,7	26,3
2001	520,8	24,3	523,7	32,3
2002	449,1	25,0	466,2	27,1
2003	277,9	28,9	627,4	28,0
2004	494,9	37,8	1.246,4	56,7
2005	1.124,6	53,4	2.157,2	51,0
2006	1.801,9	64,3	1.782,5	52,6
2007 (June)	1.848,2	61,7	65,5[4]	62,6

[1] In millions of US dollars. [2] US dollars per barrel. [3] US dollars per MT. [4] Includes USD 1.2 billion corresponding to capital reimbursement.

Sources: Balance of Payments – Banco de la República; IMF.

Table 7

Stock of Colombian external debt by sector (public and private)

USD millions

	Private			Public			Total		
	Short-term	**Long-term**	**Total**	**Short-term**	**Long-term**	**Total**	**Short-term**	**Long-term**	**Total**
2000	2.315	13.207	15.522	199	20.409	20.608	2.514	33.616	36.130
2001	2.802	12.826	15.628	320	23.148	23.468	3.122	35.974	39.096
2002	3.063	11.481	14.544	429	22.352	22.781	3.492	33.833	37.325
2003	3.095	10.386	13.481	224	24.303	24.527	3.319	34.689	38.008
2004	4.332	9.331	13.663	391	25.388	25.779	4.722	34.719	39.441
2005	4.957	9.366	14.322	399	23.733	24.132	5.356	33.099	38.455
2006	4.508	9.395	13.903	254	25.997	26.251	4.763	35.391	40.154
2007 June	5.349	10.112	15.461	328	27.463[1]	27.792	7.137	36.116	43.253

[1] USD 1.5 billion corresponds to a credit disbursed by the electricity sector.

Source: Banco de la República.

Table 8

Colombia: external debt intermediated by resident financial institutions

USD millions

Year	External debt		
	Financial (a)	Total (b)	(a)/(b) %
2000	3.244	36.130	9,0
2001	2.664	39.096	6,8
2002	2.287	37.325	6,1
2003	1.652	38.008	4,3
2004	2.201	39.441	5,6
2005	2.889	38.455	7,5
2006	2.098	40.154	5,2
2007 June	3.608	43.253	8,3

Source: Banco de la República.

Table 9

Evolution of private net capital inflows
(balance of cash foreign exchange transactions)

USD millions

	Jan 07	Feb 07	Mar 07	Apr 07	May 07	Jun 07	Jul 07	Aug 07	Sep 07	Oct 07	Nov 07
Net loans	**110**	**10**	**33**	**394**	**–135**	**–144**	**–26**	**54**	**–104**	**–74**	**–129**
Net loans to non-residents	79	–31	–34	–9	–7	–34	–11	–4	–1	–18	–19
External net indebtedness	31	41	68	402	–128	–110	–15	58	–103	–56	–110
Disbursement	168	249	300	594	221	50	110	225	92	69	24
Amortisations	–138	–208	–233	–192	–349	–160	–125	–167	–195	–125	–133
Foreign investment in Colombia	**526**	**272**	**1.393**	**477**	**1.133**	**634**	**900**	**322**	**547**	**571**	**472**
Oil and mining	290	345	310	252	562	551	410	351	310	360	344
Other sectors	227	–19	685	72	266	80	177	81	244	174	108
Portfolio[1]	10	–55	398	154	305	2	312	–110	–8	36	20
Colombian investment abroad	**–87**	**–122**	**188**	**–49**	**–14**	**–115**	**–301**	**132**	**129**	**–88**	**–191**
Direct investment	–29	–11	–21	–4	–36	–28	–17	–30	–33	–17	–20
Portfolio	–58	–111	209	–45	22	–87	–284	162	162	–71	–171
Net reimbursements from foreign deposit accounts[2]	**479**	**857**	**–260**	**328**	**453**	**129**	**–380**	**–294**	**–39**	**–111**	**–224**
International agencies	–	–	–4	–	–	–4	–	–6	–14	–1	–8
Others	479	857	–257	328	453	133	–380	–288	–24	–110	–216

[1] In July, it includes USD 314 million of ADRs of Bancolombia, which are not subject to deposit at Banco de la República. [2] Cuentas de Compensación.

Source: Banco de la República.

References

Alper, C Emre and Ismail Saglam (2000): "The equilibrium real exchange rate: evidence from Turkey", *Topics in Middle Eastern and North African Economies,* No. 1–2.

Arango, L A, A González, J León and L F Melo (2006): "Cambios en la tasa de intervención y su efecto en la estructura a plazo de Colombia", *Borradores de Economía* No. 424, Banco de la República.

Betancourt, R., Vargas, H. and Rodríguez, N (2006): "Interest rate pass-through in Colombia: a micro-banking perspective", *Borradores de Economía* No. 407, Banco de la República.

Elbadawi, Ibrahim and Raimundo Soto (1994): "Capital flows and long-term equilibrium real exchange rates in Chile", *Policy Research Working Paper* No 1306, World Bank, June.

Gómez, C, D Jara and A Murcia (2006): "Impacto de las operaciones de los fondos de pensiones obligatorias en los mercados financieros colombianos", *Borradores de Economía* No. 406, Banco de la República.

Kamil, Herman (2007): "Is central bank intervention effective under inflation targeting regimes? The case of Colombia", mimeo, IMF.

Lega, P F, A Murcia, D Vásquez and T Venegas (2007): "Volatilidad de la tasa de cambio en Colombia y su relación con algunas variables", *Borradores de Economía* No. 473, Banco de la República.

Suárez, J C (2007): "Efecto manada en los portafolios de los fondos de pensiones obligatorias en Colombia: causas y medición", thesis, Industrial Engineering Department, Universidad de los Andes, Bogotá.

Tenjo, F, L Charry, M López and J M Ramírez (2007): "Acelerador financiero y ciclos económicos en Colombia: un ejercicio exploratorio", *Borradores de Economía* No. 451, Banco de la República.

Uribe, J and H Vargas (2003): "Financial reform, crisis and consolidation in Colombia" in *Regional Integration in Europe and Latin America: Monetary and Financial Aspects,* edited by P Van der Hagen and J Viñals, Ashgate.