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# Facing Up a Sudden Stop of Capital Flows: Policy Lessons From the 90's Peruvian Experience

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# Facing Up a Sudden Stop of Capital Flows: Policy Lessons From the 90's Peruvian Experience[1]

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**Abstract**

This paper assesses the policies implemented in the Peruvian economy in response to the sudden stop of capital flows of the end of the nineties. The Peruvian experience during this episode is an interesting case-study because it offers an example of a highly dollarized economy where a sudden stop of capital flows neither had dramatic negative effects on the banking system nor generated an abrupt fall on output. We argue that the large pool of international reserves, the investments on the tradable sector before 1997 and the performance of the fiscal policy during and before the period of financial distress were fundamental to this outcome. We further extract policy lessons and discuss the strengths and the weakness of the Peruvian economy to this type of shocks nowadays.

**Keywords:** Sudden Stops, Peru, International Reserves, and Policy Responses
**JEL Classification:** E44, E58, F32, F34

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# 1. Introduction

During the nineties, capital flows represented both, an important driving force of economic growth and a source of financial distress and macroeconomic instability for many emerging market economies.[4] This dual role of capital flows has attracted the attention of the literature on different fronts. On one hand, a series of papers have focused on the factors that trigger and amplify the effects of sudden stops. Within this literature, Calvo, Izquierdo and Mejía (2004), Gertler, Gilchrist and Natalucchi (2006), Aghion, Bacchetta and Banergee (1999, 2000), Krugman (1999) and Chang and Velasco (1999) have emphasized the role of dollarized liabilities as a factor that can both ignite and propagate a financial crisis.[5] On the other hand, other papers like Calvo, Izquierdo and Mejia (2003), Cavallo and Frankel (2004), Edwards (2004), Guidotti et al, (2002), and Razin et. al., ( 2005) have concentrated on the determinants of capital flows and its consequences.

Much less attention, however, has been put on analyzing the actual policy responses in emerging market economies to sudden stops of capital flows. This a relevant issue because policy responses are an important determinant of both, the costs associated to sudden stops and its long-term effects on the economy.

In this paper we intend to contribute to fill this gap in the literature by providing a comprehensive analyzes of the Peruvian experience with capital flows during the nineties. We put special emphasis on the timing and the policy mix that the Peruvian authorities chose in response to the sudden stop episode of the end nineties, and on

[4] A large number financial crisis was associated to sudden stop of capital flows, for instance Mexico (1994), Asian (1997), Russian (1998), Brazil (1999) and Argentina (2000).

[5] These theories highlight the detrimental effects that a real depreciation of the real exchange rate has on firms' balance sheets in economies with financial frictions and where the degree of leverage of firms is large and their liabilities are denominated in foreign currency. Other authors, instead, emphasize the role of asset prices, as for instance Mendoza and Smith (2002) and (2006) and Mendoza and Bora Durdy (2005).

understanding what factors contributed or limited to the effectiveness of Peruvian authorities policy responses.

Why Peru? Peru is an interesting case for two reasons: on one hand, it is an economy that experimented both the benefits and the risks of capital flows. After a poor economic performance during the eighties with an average GDP's growth rate of –1.2 percent; Peru received a large inflow of foreign capital, mainly long-term debt and foreign direct investment that contributed to improve its growth performance.[6] On the other hand, Peru is one of the economies with the highest degrees of financial dollarization that, however, showed some resilience to the SS.

Our analysis suggest that the combination of contingent monetary policy that put special emphasis on providing international liquidity to the financial system, and a counter-cyclical fiscal policy were fundamental in diminishing the impact of the sudden stop of capital outflows. This policy mix was effective on: a) reverting the banking system liquidity shortage generated by the sudden stop; b) delaying the current account reversal and damping the negative effect of the sudden stop on output; and c) containing the depreciation of the real exchange rate, which limited the deterioration of banks' assets in a highly dollarized economy as the Peruvian one.

This analysis also indicates that a crucial determinant of the effectiveness of the Peruvian authorities' policy responses was the existence of a large pool of international assets. By 1997 Peru was the second economy in Latin America with the largest level of international reserves as percentages of M3 (67 percent), just behind Venezuela. Moreover, Peru's international assets were accumulated not only in form of financial reserves, but also in the real form of investments on the tradable sector, particularly on the mining sector. The large amounts of investment in this sector played an important role in explained the rapid recovery of exports in response to the fall in terms of trade

[6] Peru's output growth rate reached an average of 5.3 percent between 1993 and 1997

and the sudden stop of capital flows, therefore, further contributing to lessen the impact of these shocks on the economy.

On the less positive side, we consider that there were some factors that contributed to amplify the effects of the sudden stop of capital flows in Peru: the large degree of financial dollarization, the discriminatory treatment of the reserve requirement -which affected only deposits and not foreign debt- and the lack of a contingent clause to call for an automatic reduction of banks' reserves –which delayed to some extent the injection of liquidity to banks during the period of the SS.

An important lesson from the Peruvian experience is therefore that the appropriate combination of lender-of-last-resort policies in foreign currency and of an exchange rate policy that limit the volatility of the exchange rate can avoid a financial crisis even in dollarized financial systems. Also, building credibility has proven to have an enormous pay-off for Peru. Thus, the public's confidence on the Peruvian Central Bank on its capability to keep inflation under control -even during periods of large exchange rate volatility- and to act as lender of last resort in foreign currency avoided both, a larger outflow of capital and bank runs. Peru's experience also teaches that a government's buffer stock is an effective tool for reducing the economy's vulnerabilities. Indeed, the Peruvian government was able to sustain economic growth during 1998 by using a counter-cyclical policy. Moreover, this buffer stock allowed the government to participate effectively in the consolidation of the financial system, without relaying on inflationary financial sources.

The remaining of this paper is organized as follows. In section 2 we quickly describe the performance of the Peruvian economy and their main fragilities before the sudden stop of capital flows. In section 3, we detail the two shocks that Peru faced during 1998 and 2000, the fall in terms of trade and the sudden stops of capital flows after the Russian and Brazilian crisis and its immediate impact on the Peruvian economy. In section 4, we explain the policy responses implemented by the Peruvian authorities. In

section 5, we analyze in detail the adjustment of the Peruvian economy. In particular, we discuss what factors made the Peruvian financial system resilient to both, the fall in terms of trade and the sudden stop of capital flows. In section 6, we discuss the factors that contributed to facilitate the Peruvian authorities' policy responses. Finally, in section 7, we summarize the main policy lessons extracted from the Peruvian experience.

## 2. Peru: 1991-1997

After a decade of persistent macroeconomic imbalances that put the Peruvian economy on the verge of collapse -with inflation levels above 7600 percent and persistent negative output growth rates-, in 1991 the Peruvian government implemented a stabilization program and a comprehensive series of structural reforms that placed the economy back on the path of sustainable growth.[7]

On one hand, the stabilization program -which set a new monetary policy framework where price stability was the unique objective for monetary policy and the central bank was granted independence- was successful in bringing inflation down to 6.5 percent in 1997, 21 times lower than 1991's inflation rate (139 percent).[8] On the other hand, the structural reforms allowed Peru to restore its access to international capital markets and to progressively increase the economy's efficiency. Accordingly, between 1991 and 1997, the Peruvian average growth rate reached 5.3 percent, one of the highest rates in Latin America and the private sector investment increased from 13.8 percent of GDP in 1991 to 19.7 percent in 1997.[9]

Moreover, the rapid increase in capital inflows that followed the early nineties reforms and the environment of monetary stability delivered by the new monetary policy regime contributed to a swift increase in financial intermediation, which measured as domestic credit to GDP, increased from 3.2 percent in 1991 to 18 percent in 1997. Also, the fiscal position improved significantly. In this instance, the fiscal

[7] The structural reforms included the elimination of exchange and interest rate controls, the liberalization of the current and capital accounts, the implementation of an aggressive privatization program, and a financial reform by which Peru adopted the principles of banking and competition and prudential regulation with the Basle standards.

[8] As series of prohibitions to the central bank were set to guarantee its independence, for instance, the central bank was prohibited to finance the public sector, finance any state development bank, granting guarantees, granting credit to any particular sector of the economy and establishing multiple exchange rates.

[9] From 1991 to 1997 Peru received US $ 15 664 as foreign direct investment and long-term loans, which are equivalent to 27 percent of the 1997's GDP and to 124 of the total credit to the private sector of the same year.

deficit was reduced from 2.9 percent of GDP in 1991, to a surplus of 0.1 percent in 1997, and the public external debt went down from 61.9 percent of GDP to 31.9 percent between the same years.

In spite of its good macroeconomic performance, however, by the end of 1997 the Peruvian economy exhibited some weaknesses. First, the financial system was highly dollarized, which made it fragile to abrupt depreciations of the real exchange rate. Second, the financial sector was largerly concentrated, which potentially could increase the probability of systemic risk in the banking sector. Third, the financial sector did not have well-developed long-term debt and derivative markets to allow an efficient management of exchange rate risk.[10]

Importantly, however, the Peruvian economy showed some resilience to the sudden stops of capital flows (SS from now on). In the next sections, we intend to uncover the factors that were behind the capability shown by the Peruvian economy to swiftly adjust in response to the SS.

## 3. Two large shocks

In this section, we first document the main shocks that the Peruvian economy faced in 1998 and 1999. Then, we analyze their immediate impact on the Peruvian economy. This analysis will help us to understand the rationale behind the policy responses that are extensively discussed in section 4. After 1997, Peru faced two major external shocks: a drastic fall of terms of trade and the SS of capital flows generated by the Russian crisis in August 1998.

[10] As Caballero et al (2005) documents the existence of a well-developed derivative market can contribute to separate the *country risk* from the *currency risk* and in this way change considerable the response of an economy to a SS.

### 3.1. Fall in Terms of trade

During the second half of 1997, the Asian crisis weakened the world demand for commodities triggering a sharp decline on their international prices. The large concentration of Peruvian exports on a few commodities, mainly cooper, gold, silver and fishmeal, made Peru's terms of trade particularly sensitive to this kind of shock.[11] Consequently, Peru's terms of trade fell by 13 percent in 1998, one of its largest drops since 1950. As a result, during 1998 exports decreased by 16 percent, 1.5 percent of GDP. As figures 1(a) and 1(b) show, the fall in terms of trade not only affected exports but also the primary-goods sector economic activity. For instance, the fishing sector output dropped by 13 percent and the primary-goods manufacturing sector output fell 10 percent.

Figure 1(a) Manufacturing Production and Terms of Trade

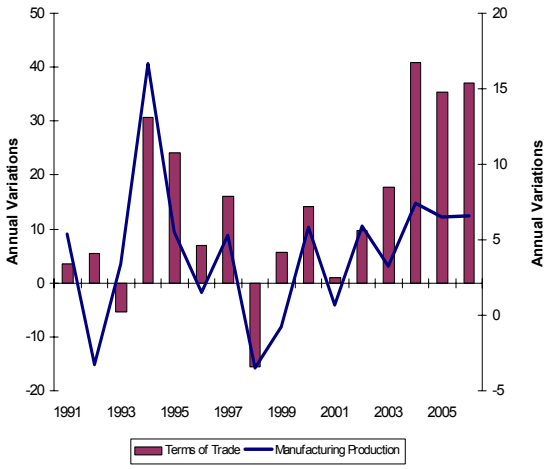
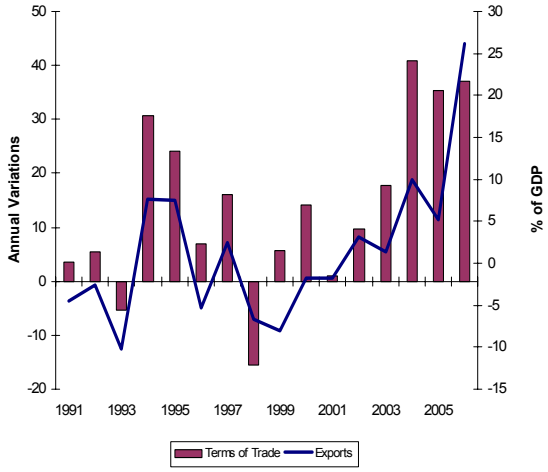



Figure 1(b) Exports and Terms of Trade




In spite of its negative effect on the tradable sector, the fall in terms of trade, however, neither had significant consequences on investment and on aggregate consumption. As figures 3(d) and 3(g) show, banking credit and investment continued registering positive growth rates during the first semester of 1998. It did have,

[11] By 1995 Peruvian exports on cooper, gold, zinc and fishmeal, represented 33 percent of total exports. See De la Cuba and Ormeño (2004) for a detailed account of the degree of Peruvian exports concentration.

nevertheless a negative impact on the financial sector. In particular, as figure 3(b) shows, it triggered a reduction on short-term capital flows, from a quarterly average flow of US $ 700 million in 1997 to a quarterly average flow of US $ 200 million during the first half of 1998. Another interesting feature of the impact of this shock was its moderate effect on the real exchange rate. As figure 3(f) shows, the real exchange rate only depreciated slightly during the first half of 1998, before the burst of the Russian crisis.

### 3.2. Sudden Stop of Capital Flows

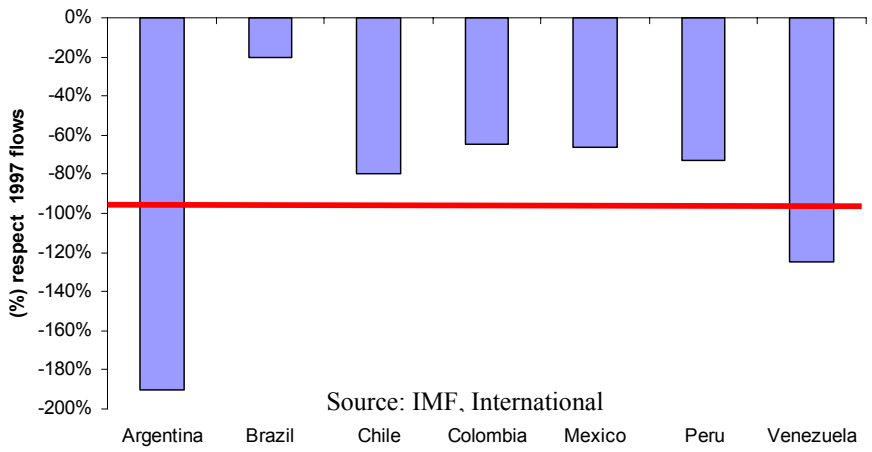
During the second half of 1998 and the first quarter of 1999, the Russian and Brazilian financial crisis triggered a sharp and significant SS of capital flows to Peru. The magnitude of this reversal in capital flows is shown in tables 1 and 2. Table 1 contains information for cumulative capital flows calculated for 4 consecutive years, 1994-1997 and 1998-2001, whereas table 2 presents similar information but for the period spanning 1997 to 1999. As table 2 shows, by the end of 1999 the total annual capital inflows to Peru went down to 1 percent of GDP (US $ 583 million), representing only 10 percent of its corresponding level in 1997 (US$ 5 805 millions).[12] A similar picture is obtained using information on cumulative flows. In this case, the 4-year cumulative capital flow to Peru went from 8 percent of GDP (US$ 17 302 million) between 1997-1994 to 2 percent of GDP (US$ 4 941 million in 1998-2001), a 71 percent reduction.

The capital flow reduction in Peru was not only significant in comparison with its recent history but also in comparison with the reduction in capital flows registered by other economies in the region. As figure 2 illustrates, the average fall in capital flows

[12] Calvo et. al (2004) define a sudden stop as a reduction of capital flows below two standard deviations of its historical mean. In the case of Peru the flow in 1999 was that limit was US $ 963 millions.

for the Latin American seven largest economies (LA-7) was around 80 percent between 1997 and 2001, just above the 73 percent reduction in capital flows observed in Peru during that period.

**Figure 2: Sudden Stops of Capital Flows**




Source: IMF, International

Regarding the composition of capital outflows, short-term capitals accounted for 76 percent of this reduction, falling from 4.3 percent of GDP (US$ 2 471 million) in 1997 to -2.9 percent of GDP (US $ 1 476 million) in 1999. Within short-term capital outflows, 48 percent corresponded to the reduction of Peruvian banks' short-term foreign debt.

Similarly, long-term capital flows diminished but much less than short-term capital flows. Between 1998 and 1999, long-term capital flows fell US$ 1 278 million, 38 percent lower than its corresponding value in 1997, US$ 2 883 million. Crucially, most of the reduction in long-term capital flows was accounted by private capital flows, which explained 90 percent of this reduction.

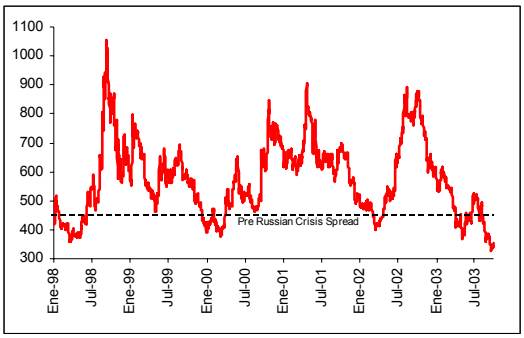
On the other hand, as table 2 shows government borrowing did not register a major change during these years. The total net capital flow to the government fell only US $ 124 million, 2 percent of the total reduction in capital flows. Furthermore, the

Peruvian government did not increase its net borrowing from multilateral institutions during the SS episode. Indeed, as table 2 shows, disbursements from these institutions diminished between 1997 and 1999 by US $ 392 million.

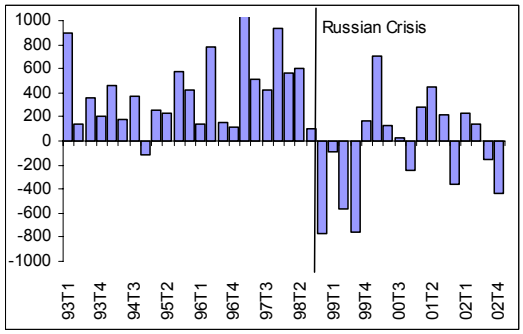
In contrast with the terms of trade shock, the SS quickly impacted the financial system and the exchange rate market. In particular, as figure 3(a) and 3(f) show, the country-risk premium measured by Peru's EMBI spread more than double in less than a month, increasing from 500 basic points in July 1998 to 1100 in August of the same year. This spread remained above its pre-crisis levels until the first quarter of 2000, when the political turmoil generated by the 2000 presidential election set off an additional jump on this indicator.

Figure 3. Sudden Stop and Macroeconomic Adjustment in Peru, 1997-2003

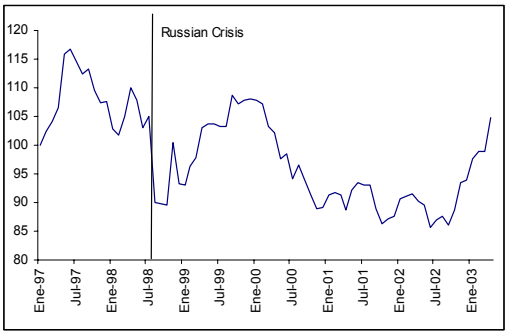
(a). Global Bond Spreads
(Peru EMBI spread)



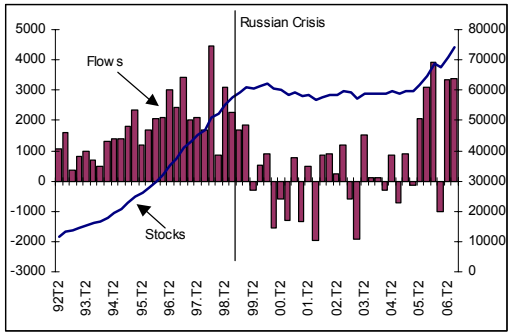

(b) . External Financial Flows
(Non-FDI flows + E&O, in million of US dollars)



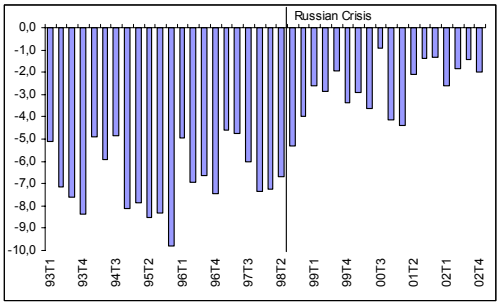

(c ). Stock Prices
(local stock index, Junuary 97 = 100)



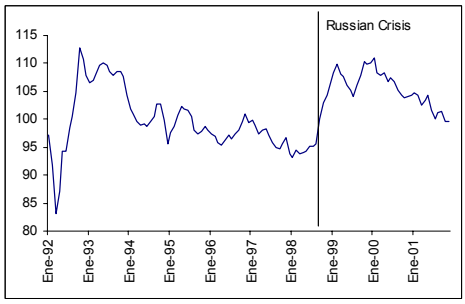

(d ). Domestic Bank Credit
(to the private sector, million of 2001 soles)



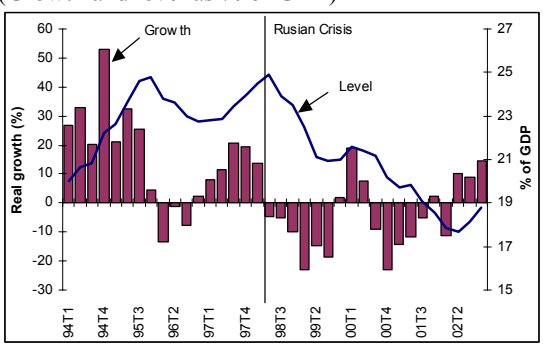

(e) Current Account Adjustment
(last 4 quarters, % of GDP)



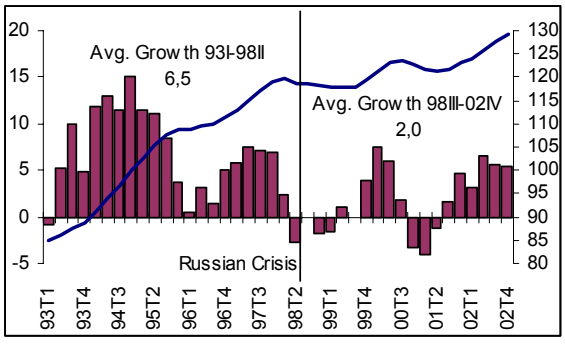

(f ) Real Exchange Rate Adjustment
(multilateral real exchange rate, 1994=100)




(g ) Investment
(Growth and level as % of GDP)




(h ) Economic Activity
(GDP, real index 94=100 and growth rate)



The sell off of domestic-currency denominated assets in response to the increase in the country-risk put an enormous pressure on both the foreign exchange and money markets. Initially the short-term interest rate absorbed most of the impact. This variable increased from 25 percent at the beginning of the crisis in July to 39 percent two months later, whereas the depreciation of the nominal exchange rate only reached 4.2 percent. However, in the medium term, the opposite happened. By the end of 1999, the nominal exchange rate depreciated 20 percent respect to its value in July 1998, while the short-term interest rate fell back to 16.9 percent.

Also, asset prices were strongly impacted. In particular, the main price index of the Peruvian stock market, the IGBVL, dropped 27 percent between July and September 1998, but it recovered relatively quickly, reaching its pre-crisis level by the end of 1999.

The short supply of international liquidity combined with the depreciation of the exchange rate and the jump on interest rates affected negatively the liquidity position of domestic banks. Accordingly, the real growth rate of banking credit fell from 24 percent in 1997 to 14 percent in 1998. The worsening of financial conditions was further accompanied by a slowdown in Peru's economic activity. Thus, Peru's output growth rate went down from 6.9 percent in 1997 to –0.7 percent in 1998, 0.9 percent in 1999, and 3 percent in 2000.

Crucially, both, the timing and the choice of policy actions, shaped the Peruvian GDP response to the aforementioned shocks. However, a set of initial conditions was fundamental in the success of these policies. Among those we have a) a large pool of international reserves both at the financial system and government that made possible to avoid a larger shortage of international liquidity and to finance the counter-cyclical fiscal policy and b) sizeble amounts of investment on the tradable sector before 1997

that contributed to speed up the recovery of the Peruvian economy after the SS. The next two sections address these issues in more detail.

## 4. The Policy Responses

The macroeconomic landscape faced by the Peruvian economy during 1998-2001 was a test to their authorities and to the reforms implemented during the nineties. The two shocks described previously were large and had widespread effects on the economy. Policy response required, therefore, not only an effective and quick action but also coordination among the involved authorities. Three authorities shared the responsibility of implementing the policy responses: the central bank, who was oriented to maintain price stability and to provide liquidity to financial system; the minister of finance, that implemented counter-cyclical fiscal policy and a series of programs to strengthen banks' net worth and their assets quality; and, the superintendence of banks, who adjusted the financial system regulatory framework to facilitate the merge and the capitalization of financial institutions.

### 4.1. First-line Policy Responses: Liquidity Provision 1998-1999.

In a context of a widespread dollarized banking system, the initial policy response of the Peruvian authorities was to defend the value of the domestic currency to avoid the balance sheet effects that a large depreciation could generate.[13] Thereby, to reduce the pressures on the exchange rate, the short-term interest rate was allowed to rise from 18.6 percent on August 26$^{th}$ to 38.3 percent on September 1$^{st}$, which prevented a large initial depreciation of the exchange rate (4.2 percent between August and October 1998). However, monetary authorities promptly reoriented its policy actions to provide not only temporarily but also permanently foreign currency liquidity to the banking

[13] The dollarization ratio in 1998 was 75 percent, measured as fraction of bank's loans in foreign currency.

sector. The following are the main policy actions implemented by the central bank to achieve this objective:

- **Credit facilities in foreign currency**. This was the first measure taken by the monetary authorities to confront the shortage of foreign-currency liquidity. It started on September 2, 1998. The main goal was to provide short-term foreign-currency liquidity to banks and therefore reduce the pressure on the domestic inter-bank interest rate. Through this facility the central bank injected a daily average of US $ 135 million on September, a 4 percent of the annual current account deficit in 1997; US $ 116 million on October, US $ 39 million on November, and US $ 19 million on December of 1998.
- **Reduction on the average and marginal reserve requirement in foreign-currency deposits.** By this policy measure, the central bank provided permanent liquidity in foreign currency. The average reserve requirement was reduced 4.5 percentage points between October and December of 1998, which represented an injection of US $ 420 million to the financial system, around 12 percent of the 1997 current account deficit. Similarly, the marginal reserve requirement was trimmed down from 35 percent to 20 percent. In this way, banks were allowed to use a larger fraction of their deposits for intermediation.
- **Foreign exchange interventions**. In the period June 98-March 99, the Central Bank sold a net amount of US$ 404 million of foreign reserves to the private sector. These non-inflationary resources were used mainly to avoid excessive volatility in the exchange rate.[14]

[14] This amount considers both the central bank's sells of foreign currency to the banks and to the public sector.

Notoriously, not only the central bank took measures to provide international liquidity to the banking system but also the government. The public sector had a large amount of deposits, which represented about half of the total liquidity of the banking system. These funds were used to distribute liquidity among banks and to lessen pressures of liquidity shortage on the banks' balance sheet through the following policy measures:

- **Conversion of public sector foreign-currency deposits to domestic currency**. The deposits maintained by the public sector in the financial system were converted into domestic-currency deposits at medium-term maturities. Additionally, new credit lines were provided through the *Corporación Financiera de Desarrollo* (Cofide), transferring the government's deposits maintained in the Central Bank and *Banco de la Nación* (S/. 385 million in total) to private banks.

- **Temporary banks' portfolio purchase program**. Since December 1998, the government carried out two consecutive programs for the temporary purchase of the banks' asset portfolios. As a counterpart, banks committed to repurchase their portfolios at a discount of 20 percent in the following 5 years. To participate in the program, banks were further required to implement a net worth strengthening program that included injection of new capital by banks' owners. In the first program 8 institutions participated and the government temporarily acquired credit portfolios for a total of US$ 136.3 million. In the second program, 11 institutions entered the program for a total of US$ 290.4 million.

The superintendence of banks further complemented the government and central bank policy efforts by imposing a minimum liquidity requirement during the second

quarter of 1997 and establishing a temporary exemption for the risk classification of a sub-set of assets in 1998.

- **Minimum liquidity requirements**. Banks were required to maintain as liquid assets not less than 20 percent of their foreign-currency denominated assets and not less than 8 percent for domestic-currency denominated assets.
- **Risk classification exemption**. The banking regulation required that when a bank refinanced a credit, the debtor's loan should be downgraded to the highest risk classification. The exemption allowed banks to reclassify the refinanced debts in an intermediate notch. In this way, banks provisions for those loans were effectively cut from 25 percent to 5 percent. While this measure induced banks to take more risk, it temporarily lower the cost of refinancing debts.[15]

Although, the macroeconomic adjustment in Peru did not implied a banking crisis, the combination of the slowdown on the economic activity, the increase on domestic interest rates, and the negative impact of the depreciation of the real exchange rate on firms' balance sheets, weakened the financial sector asset quality and net worth. Consequently, the government took a series of policy actions to restore the solvency of the financial system. These policies were aimed at facilitating the merge, capitalization and liquidation of financial institutions.

### 4.2. Solvency Management: Consolidating the Financial System: 1999 –2003

A large process of consolidation in the financial system took place during 1999 and 2000 that allowed the merge and liquidation of several financial institutions. At the end

[15] Resolución SBS Nº 572-97.

of 1998, 25 banks, 7 financial companies, 7 leasing companies and 29 municipal and rural saving institutions composed the financial system. After three years, at the end of 2001, the number of banks fell to 15, that of financial institutions to 5 and that of municipal and rural saving institutions to 26.[16] This process was implemented, however, without jeopardizing the stability of the entire financial system and the public's confidence on it. A series of policy measures aimed at strengthening the solvency of the financial system and facilitating the liquidation of insolvent banks were instrumental to the final result. A selected list of them is discussed next:[17]

- **Net worth Consolidation Program**. This program intended to promote banks' capitalization and the participation of new investors in the financial institutions that were in reorganization. To that purpose, a fund (with public resources) was created to temporarily subscribe the shares of financial institutions in need of capital. To be eligible, financial institutions had to subscribe no less than 30 percent of the banks' net worth after reorganization. The subscription should not represent more than 50 percent the financial institution capital rise. Only, one institution participated in this program and US$ 54 millions in shares were temporarily subscribed by the fund.

- **Financial System Consolidation Program**. This program was intended to incentive mergers of financial institutions. The deposit insurance provided a subsidy of up to US $ 200 millions for a financial institution that acquired another one at lower market value. Under this program there were two mergers of financial institutions.

- **Program for Financial Rescue of Agricultural Companies and Program for Net worth Consolidation of Commercial Companies**. These programs were intended

[16] In total 11 banks exit the system between 1998 and 2001: 5 banks were absorbed by other banks and the remaining were liquidated. Also, a new bank entered to the system in 1998.
[17] Table 2 provides details on the legal instruments used to put them in place.

to support the debt's refinancing of the companies in these sectors. With that goal two funds were created for US$ 100 million and US$ 400 million respectively.

- **Provision requirements**. The Peruvian Superintendence of banks first set these requirements in August 1997[18] as a prudential regulation measure. Although, effectively started to be binding, first partially, on the first quarter of 1998, and then fully, on second quarter of 2000. Provisions consisted on additional capital requirements depending on the risk quality of banks' assets. The intention behind the gradual implementation of the measure was to give banks the right incentives when evaluating the risk profile of their clients.

- **Limits to banks' global positions in foreign exchange**. According to this measure, the overbought bank's position on foreign exchange should not be greater than 100 percent of the bank's net worth, and the oversold position not greater than 2.5 percent. The bias against oversold positions had the objective of reducing the banks' risk exposure to unexpected depreciations of the exchange rate.

Notoriously, the use of public funds to provide liquidity and to finance the costs associated to the consolidation of the financial system was not perceived by the public as step backwards against the liberalization process initiated during the early nineties. This perception was partly the result of both, the government's willingness to rapidly transfer the assets of the financial sector that it acquired in the consolidation process, and the set of requirements included on the consolidation programs. These requirements

[18] Even though they were no implemented at the time of the financial crisis, they are a clear example of the prudential attitude of the authorities even before the crisis erupted.

promoted the capitalization of banks and, in this way; they placed the burden of restructuring costs on the parties that have benefited most from risk-taking activities.[19]

Furthermore, the credibility of the central bank was crucial to content higher inflation expectations associated to the use of funds during the financial system consolidation process. The central bank effectively showed that it was able to keep inflation under control even during periods of large exchange rate volatility, and to act as lender of last resort in foreign currency.

The consolidation of the financial system by the end of 2000 quickly stabilized the share of non-performing loans around 9 percent in 2000. Meanwhile, bank provisioning was around 120 percent of non-performing loans, further contributing to foster confidence on the banking system.[20]

## 5. The Economy's Adjustment

In this section we document and analyze how the Peruvian economy adjusted to the SS in comparison with other economies in the region and to what extent the policies implemented by the Peruvian authorities affected this adjustment.[21] We use four selected indicators for this evaluation, namely the average fall in GDP growth rate, the average fall in investment growth rate, the magnitude of the current account reversal and the variation of the real exchange rate.[22]

As table 3 shows, Peru's adjustment was similar to some extent to the ones observed in Chile and Colombia but markedly different to the one registered in

[19] The measures taken by Peruvian authorities to strength bank's solvency were in line with the banking crisis resolution principles proposed by Rojas-Suárez (2005).
[20] Indeed, the IMF in its Peru 2000 Article IV concluded: "the authorities' current strategy for the banking system was broadly appropriate, but the financial system in Peru will continue to face pressures".
[21] The economies used in this comparison are the LA-7.
[22] As Calvo et.al. (2004) report during a SS it is common to observe large depreciations of the real exchange rate (RER), sizable reversals in the current account and a rapid slowdown in output growth rates and on investment.

Argentina. The resemblance is closer in particular on the dimensions of the current account reversal and on the change in investment growth rates. In fact, the current account reversal for Peru, computed from the second quarter of 1998 to the fourth quarter of 2002, was 5 percent of GDP, slightly below the average reversal of the economies in the sample, 6.5 percent of GDP and just above the reversals observed in Chile and Colombia, 5.2 percent of GDP and 4.7 percent of GDP, respectively. Similarly, investment growth rates in Peru dropped by 18 percent for the same period, just above the 16.5 percent average fall in investment growth rates of the other economies in the region.

Peru's macroeconomic adjustment looks different, however, when we look at the RER depreciation and at the reduction in output growth rates. On this account, the adjustment experimented by Peru was mild. On one hand, the domestic currency only depreciated 22 percent in real terms, in comparison with the average 68 percent depreciation registered in the other economies in the region. On the other hand, Peru's output growth rate dropped to an average of –2.8 percent, a contraction in economic activity not as severe as the -6.2 percent output growth rate in Chile and the -3.5 percent output growth rate in Colombia.

These latter differences are explained not only by the particularities of the Peruvian authorities' policy responses but also by some features of the Peruvian economy at the moment of the SS. Among these features, the most relevant are: a) the large level of international liquidity at the financial system b) the improved fiscal position and c) the large pre-SS investment levels on the tradable sector. The next subsections discuss extensively how these features of the Peruvian economy and the authorities' policy responses played a role on preventing a banking sector crisis, and consequently a larger fall in economic activity.

## 5.1. The Resilience of the Financial System

Although, Peru did not suffer a banking crisis, the financial sector was strongly affected by the SS. As table 4 and figures 4(a) and 4(b) show, during 1998-2000, the levels of financial intermediation and the quality of banks' assets sharply deteriorated. On one hand, the growth rates of banks' credit to the private sector in domestic and foreign currency decreased from levels above 20 percent in 1997 to approximately 10 percent in 1998 and around to 0 percent in 1999. On the other hand, banks' assets quality, measured by the fraction of non-performing loans to total loans, increased from 7 percent in 1997 to 9.7 percent in 1999, the largest value of this indicator since 1993. Similarly, the profitability of the banking sector fell to its historical minimum, 2.9 percent of banks assets, in 1999.

**Figure 4(a) Selected Banking sector Indicators**

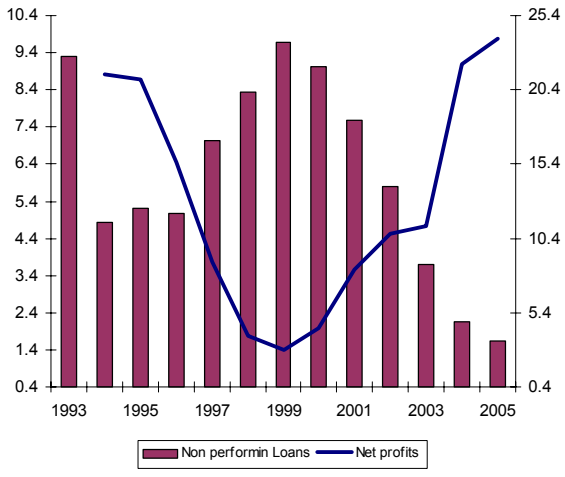
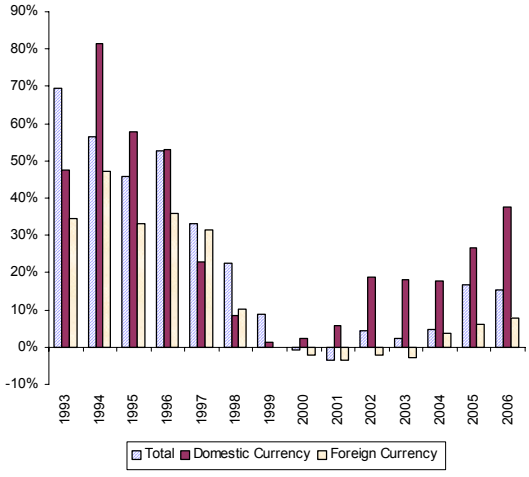



**Figure 4(b) Banking Credit Growth Rates**




Two factors contributed to increase the vulnerability of the banking sector to the SS of capital flows: a) the banks' large foreign short-term debt and b) the high levels of financial dollarization. On one hand, banks rapidly increased their short-term debt with

foreign banks after 1995.[23] Particularly, in 1997 banks' short-term debt increased from US $ 388 million to US $ 1345 million (from 5 to 16 percent of total banks' foreign currency liabilities). Therefore, when foreign banks limited their lending to Peruvian banks in the second half of 1998, several of them, especially those that had more short-term foreign debt faced a significant shortage of international liquidity. In response, Peruvian banks immediately started to borrow locally in domestic currency and to purchase foreign currency to fulfill their short-term debt payments. This strategy was, however, very costly for banks since the central bank, as we already discussed in section 4.1, sharply raised the short-term interest rate in response to the SS of capital flows to avoid a larger depreciation on the nominal exchange rate. As a result, Peruvian banks' profits rapidly decreased and the availability of banks' credit to the private sector sharply shrunk.

On the other hand, the large levels of financial dollarization, which by the end of 1997 reached 65 percent of total deposits and 75 percent of total banks' loans, coupled with the 22 percent real exchange rate depreciation between 1998 and 2000 contributed to increase the solvency risk of the Peruvian banking sector.[24] In fact, the rise in the non-performing loans ratio observed during 1998 and 1999 was partially explained by the negative effect of the real exchange depreciation on the banks borrowers' balance sheet.[25] As Calvo et. al (2004) highlights, a real depreciation of the exchange rate in an economy with high levels of financial dollarization, as the Peruvian one, can trigger uncertainty about the banking system solvency, which could lead to bank runs in

[23] To some extent, the increase on banks' short-term debt during 1997 responded to the reserve requirement regulation that made more costly to use domestic deposits relative to short-term foreign debt for financing bank's loans. By that time, the marginal reserve requirement for foreign currency deposits was 45 percent and zero for short-term debt, which *ceteris paribus* implied a lower intermediation cost for the latter.

[24] Importantly, the real exchange depreciation affected banks' balance sheet only indirectly since their dollar-denominated assets and liabilities were matched. The main negative effect of a real depreciation was on banks' borrowers' balance sheet, given that a large fraction of them were firms producing in the non-tradable sector.

[25] In 1998 the banks non-performing ratio increased 12 percent, from 5.8 percent in 1997 to 6.5 percent in 1999.

expectations of bank bankruptcies, seriously affecting the payments system.[26] This, however, did not happen in the case of Peru. In spite of the high degree of financial dollarization, the Peruvian financial system suffered neither banks runs nor a systemic banks' failure during the SS.

A series of factors were fundamental to this outcome. First, the promptly injection of foreign liquidity of the central bank that contributed to restore banks' liquidity levels, particularly of large banks, and prevented a further contraction on banks' credit to the private sector. [27] In fact, during 1998, $ 682 million of the US $ 891 million of credit to the private sector were financed by the injection of foreign liquidity from the central bank. This injection of foreign-currency liquidity allowed banks to reduce their demand for short-term domestic funding, which further contributed to a reduction on the short-term domestic interest rates and through this channel it limited the impact of the SS on banks balance sheet.

Second, the slow and mild depreciation of the RER prevented a larger deterioration of banks' asset quality. As table 3 shows, The Peruvian sol was among the three most stable currencies during that period.[28] In fact, the RER depreciated only 22 percent between 1998 and 2000. The absence of a larger RER depreciation limited the impact of the SS on firms' balance sheet, in particular, of those that had currency mismatches. Consequently, the repayment capacity of banks' debtors was, to some extent, protected and thereby banks' assets quality did not deteriorated significantly. Indeed, non-performing loans relative to total loans only increased from 5.8 percent in

[26] Other authors also find evidence that financial dollarization increases the fragility of the financial system and constraints monetary policy. For instance, De Nicoló et al (2003), Domac y Martinez Peria (2004), Levy Yeyati (2005) and Céspedes (2005) find that financial dollarization rises the likelihood and the ex-post costs of financial crisis, and Calvo (2000) that financial dollarization induces "fear of floating" on the behavior of central banks, limiting the use of the exchange rate as an adjustment mechanism in response to foreign shocks

[27] A key factor that contributed to make this policy credible was the large pool of international reserves at the central bank. In 1997 international reserves represented US 10 169 million (116 percent of the total banking sector foreign-currency deposits).

[28] Among the seven largest Latin American economies.

1997 to a maximum level of 10.1 percent in 2000, in spite of the large degrees of financial dollarization.

Finally, the regulation put in place before 1997 played also an important role since it contributed to limit banks' risk exposure. The financial reform initiated in 1991 not only included the dissolution of state-owned development banks and the creation of the private pensions system but also the introduction of new legislation that included aspects of prudential regulation in line with the Basle Committee recommendations.[29] Specifically, in 1991, the legislation introduced minimum capital requirements and operational limits in terms of the effective banks' net worth.[30] Furthermore, in 1996, a new law was introduced to strengthen the financial system and banking supervision that included regulation on credit and market risks management and consolidated supervision for financial conglomerates. As table 4 shows, the new regulatory framework allowed banks to reduce their levels of non-performing loans from 9.3 percent of total loans in 1993 to 5.8 percent of total loans in 1997 and to maintain provisions above 70 percent of non-performing loans.

Despite the Peruvian financial system's resilience to the SS, some small banks, however, did exit the system through a process of banking system consolidation.[31] From the 25 banks existent at end of 1997, eleven banks left out the system. Importantly, only 6 of these exits corresponded to processes of intervention and liquidation by the superintendence of banks. The remaining 5 exits took place through market-oriented mechanisms considered in the banking law such as mergers, absorptions, and partial

[29] In 1991 Peru executed a comprehensive series of reforms that included, besides the banking sector reform, the elimination of exchange and interest rate controls, the liberalization of the current and capital accounts, and the implementation of an aggressive privatization program that shifted the control over a wide range of productive activities from the public to the private sector. These reforms allowed Peru to restore its access to international capital markets and to progressively increase the economy's efficiency.

[30] This new regulatory system also included the liberalization of interest rates and equal treatment to foreign investment in the sector.

[31] These banks represented no more than 13.5 percent of total banks´ deposits. This fraction is even smaller, just 4 percent when we consider only those banks that were liquidated

sells of banks' portfolios. [32] Many of these banks failed because their maturity mismatches between their assets and liabilities were above the average for the system, and consequently they were the most exposed to the liquidity shortage generated by the SS.[33] Moreover, their liquidity problems were further enhanced by a fly-to-quality behavior of depositors that shifted their deposits from small to large banks in response to the uncertainty generated by the SS.

### 5.2. The Slowdown in Economic Activity

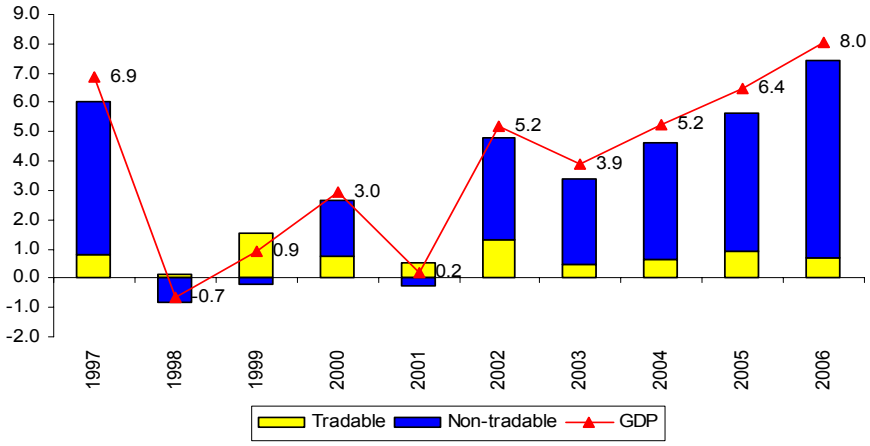
Both shocks, the large drop in Peru's terms of trade and the SS of capital flows, had damaging consequences on Peru's economic activity. In fact, GDP's growth rate decreased to –0.7 percent in 1998 from the 6.9 percent growth rate observed in 1997. The slowdown in output growth rates was, however, not homogenous across productive sectors. As table 5(a) and figure 5(a) show, most of this reduction was explained by the negative output growth rate of the non-tradable sector, which was partially offset by the positive output growth rate exhibit by the tradable sector.[34] This asymmetric evolution was particularly notorious in 1999 when the growth rate of the tradable sector more than compensated the fall in the non-tradable sector.[35]

As table 5(b) and figure 5(b) show, a similar pattern is observed across aggregate demand components. In this case, the negative growth rates of private consumption and private investment observed during 1998 and 1999 accounted for most of the output fall

[32] One new bank entered the system in 1998; therefore at the end 2001 the number of banks in the banking system was 15.
[33] The banks that failed during 1998 to 2001 maintained 40 percent of their total liabilities in the form of foreign debt, above the 31 percent average for the system. Moreover, this percentage was even larger for those banks that were liquidated, close to 50 percent of their liabilities.
[34] During 1998 and 1999 output growth in the tradable positively contributed to GDP's growth rate in 1.5 and 1.4 percentage points, partially compensating the negative contribution of the non-tradable sector, -1.7 and –0.5 percentage points.
[35] The growth in the tradable sector contributed to GDP's growth with 1.5 percentage points, fully offsetting the negative contribution of the 0.5 percentage points fall in the non-tradable sector. In 1999 output growth rates of the tradable sectors such as: agriculture, fishing and mining reached 10, 28 and 13 percent during that year.

of those years, 79 and 77 percent.[36] This evolution was, however, partially compensated by the positive growth rates of exports and government expenditure. In fact, the joint contribution of consumption and investment to output growth rate was –1.5 and –0.4 percent in 1998 and 1999, whereas that of exports and government expenditure was of 1.5 percent and 1.4 percent.

**Figure 5a: Growth Accounting per Productive Sector**

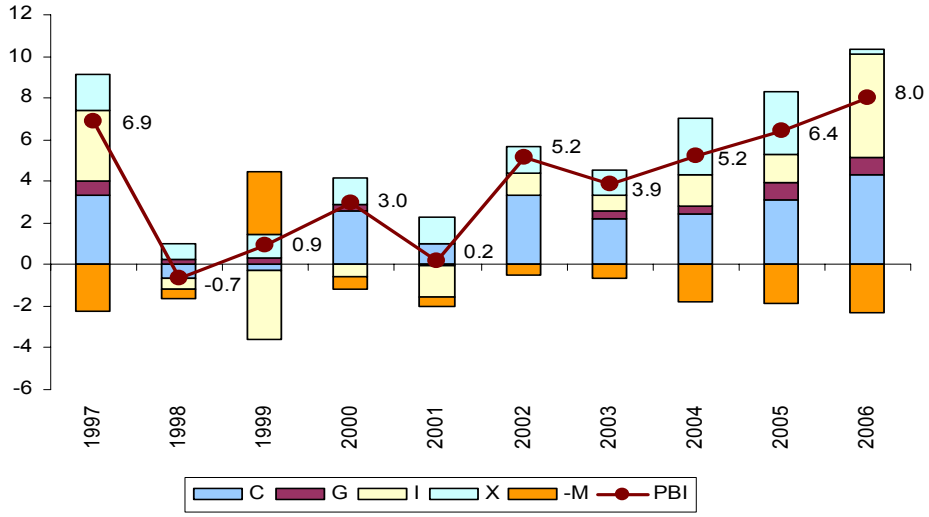



The previous analysis then suggests that both the counter-cyclical fiscal policy and the positive growth rates of the tradable sector helped to cushion the impact of the SS on Peru's output growth rate[37]. For instance, if both public consumption and investment would have fallen at the same rates as their private counterparts, Peru's GDP growth rate would have fallen –1.2 percent and –2.3 percent in 1998 and 1999 instead of the –0.7 percent and 0.9 percent growth rates observed during those years.

[36] Consumption growth rate went from 4.5 percent in 1997 down to –0.4 percent in 1997, whereas investment went down from 15.4 to –3.3 percent during a similar period

[37] See Ortiz et al (2007) for a detailed account of the benefits of counter-cyclical policies in 19 experiences of SS.

**Figure 5(b): Growth Accounting per GDP Component**




The counter-cyclical fiscal policy, however, implied a rapid deterioration of the fiscal accounts.[38] As table 6 shows, the fiscal deficit increased to an average of 2.5 percent of GDP between 1998 and 2000 from the 0.1 percent surplus in 1997. The government, nevertheless, financed most of these deficits using its accumulated deposits at the financial system. Thus, 77 percent of the fiscal deficit during 1998 and 2000 was financed by public sector own savings and by resources coming from privatization proceeds.

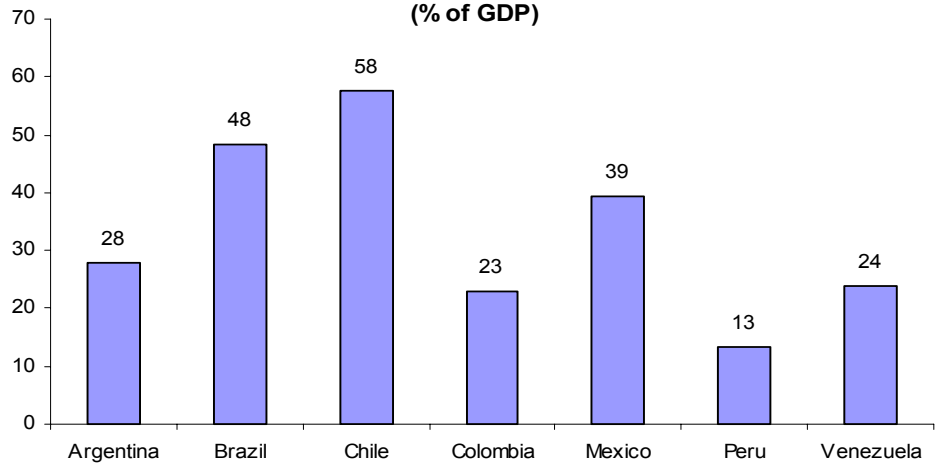
The second factor that contributed to mitigate the impact of the SS on output growth rates was the fast recovery of tradable sectors, such as mining and agriculture. Particularly important was the increase of the mining sector growth rates, which during 1998 and 1999 reached 3.7 and 13.1 percent, contributing with 0.17 and 0.64 percentages points to GDP output growth rate.[39] The quick recovery of the mining sector was due to the investment on new projects made during the years previous to the SS. The increase in production capacity generated by these new investment projects

[38] It is important to highlight the counter-cyclical fiscal policy in 1999 coincides with an electoral year.
[39] Also, the agriculture sector positively added to the recovery of output growth rates with 0.05 and 0.8 percentage points during that period.

made possible that mining companies easily responded to the fall in their export prices by increasing their production levels.

There was an additional factor that contributed to diminish the fall in private consumption and investment: the shallowness of the financial system. As figure 6 shows, Peru is among the countries that have the lowest levels of financial intermediation in Latin America, 13 percent on average from 1991 to 1997. In fact, for the period 1993-1997, Peru ranks penultimate in Latin America on this account. [40]

**Figure 6: Financial Intermediation**
**(% of GDP)**




The low degrees of financial intermediation imply that a large number of firms, in particular medium and small size, use internal funds to finance their production activities and do not depend directly on the financial system. Thereby, these group of firms were not directly affected neither by the depreciation of the RER nor by the rise on interest rates. Similarly, when the degree of financial intermediation is low, financial assets represent only a minor fraction of households' wealth. Therefore, the negative effects on aggregate spending that the fall in asset prices generates in response to the SS are greatly diminished.

[40] Financial depth is measured as bank credit to the private sector in terms of GDP.

The literature on the third generation of currency crisis usually highlights two channels through which a SS can spread out and amplify its effects on the economy: "liabilities dollarization", emphasized by Calvo et. al (2004) and the asset price channel, proposed by Mendoza and Smith (2002) among others. According to Calvo et. al (2004), sudden stops are generated by an international credit shock, which is enlarged by the interaction between currency mismatches and a real depreciation. On the other hand, Mendoza and Smith (2002) highlights the role that a fall in asset prices has in generating a Fisherian asset-price deflation, which subsequently triggers a current account reversal and a collapse in consumption. In the case of Peru, the first channel was greatly limited by a small depreciation of the RER, and the second one by the low degrees of financial intermediation.

### 5.3. The Mild Adjustment of the Real Exchange Rate

As we already highlighted at the beginning of this section, the real exchange rate in Peru depreciated only 22 percent between 2002 and 1998, much less than in other economies of the region. This evolution of RER played an important role on limiting the impact of the SS on banks' assets quality, because it avoided the further deterioration of the payment capacity of those banks' customers with currency mismatches. In this subsection we argue that a mix of counter-cyclical monetary and fiscal policies contributed to achieve this outcome.

On one hand, the quick central bank's response to the SS -by raising the short-term interest rate first and by injecting liquidity in foreign currency later- contained the depreciation of the nominal exchange rate in the short-term and, thereby, avoided a

larger real exchange rate depreciation.[41] By restraining the depreciation of the exchange rate, the central bank was effectively protecting the financial system from a larger deterioration of its assets quality and therefore avoiding a larger impact on the financial system. Given the large fraction of dollar denominated loans, a larger depreciation of the real exchange rate would have seriously damaged banks' solvency, compromising the stability of the financial system. An interesting feature of the Peruvian central bank intervention, although, was that it did not defended a particular level of the exchange rate; instead, it aimed at a smoothed depreciatory path.

On the medium run, the counter-cyclical fiscal policy complemented monetary policy in avoiding a large RER adjustment. As we discussed on the previous section, during 1998 and 1999, the government increased its expenditure in real terms in a context of diminishing tax revenues, which effectively prevented a further fall in economic activity. In this way the fiscal policy contributed to diminish the necessary fall in the relative price of non-tradable goods to bring the external accounts on balance and consequently prevented a further depreciation of the RER. A similar role was played by the rapid increase in the production levels of the tradable sector, particularly of the mining sector that contributed to reduce the pressures on the real exchange rate by permitting a current account reversal without a further fall in domestic aggregate demand.

### 5.4. The Delayed Current Account Reversal

Table 7 shows the evolution of the current account deficit, the financial account and the flow of central bank's international reserves from 1995 to 2006. From these figures it is evident that the Peruvian economy did not experiment a current account reversal until 1999. Indeed, during 1998 the current account deficit was only US $ 32

[41] Not only the central banks used the interest rate and the direct injection of international liquidity to avoid a further depreciation of the real exchange rate but also directly participated on the foreign exchange market. Indeed, during 1998 the central bank used 1 percent of GDP (US $ 330 million to that purpose)

million lower than the corresponding in 1997. During this year, most of the SS was financed by a reduction on international reserves owned by both, the central bank and the government. In this context, the central bank used international reserves amounting 1.8 percent of GDP (US $ 1006 million) to finance the current account deficit during that year.[42]

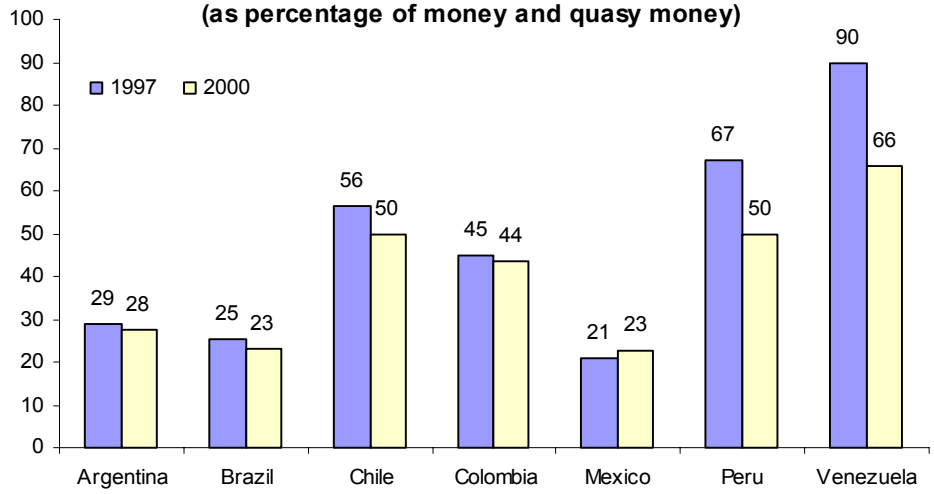
In contrast to what happen in 1998, when the current account deficit remained at 5.8 percent of GDP (US $ 3336 million), during 1999 the current account deficit sharply decreased to 2.7 percent of GDP (US $ 1380 million). Most of this reduction was explained by the drastic cut in imports that went down from the 14.4 percent of GDP (US $ 8 219 million) in 1998 to 13.1 percent of GDP (US $ 6 710 million) in 1999. The rapid recovery of exports during 1999, however, further complemented the current account adjustment. During this year, Peruvian exports increased by 14 percent in real terms, contributing effectively to the current account reversal. The central bank, however, continued supporting the delay of the current account adjustment by loosing international reserves, 1.4 percent of GDP (US $ 775 million) during this year.

This sizeable reduction of the Peruvian central bank's international reserves portraits its willingness to actively use international reserves in response to the SS. In fact, as figure 7 shows, with exception of Venezuela, Peru is the economy that used most of its international reserves. From 1997 to 2000 Peruvian's reserves fell from 67 percent to 50 percent of M2, a larger reduction than those observed in Argentina, Brazil, Colombia and Chile. As we explained in section 3, the first-line policy responses of the Peruvian authorities consisted on injecting international liquidity to the financial system through different mechanisms, such as the reduction on the banks' reserve requirement ratio. By doing so, the central bank allowed private banks to replace foreign short-term

[42] In contrast during 1997, the central bank accumulated of 2.9 percent of GDP (US $ 1 733 million) as international reserves.

funding with the international liquidity it provided, limiting the impact of the SS on banks' credit to the private sector.

**Figure 7: International Reserves**
**(as percentage of money and quasy money)**




## 6. The Key factors for policy effectiveness

As we already emphasized, the adjustment in the economy described previously depended crucially on the way the Peruvian authorities responded to the SS. These policy responses were successful on several dimensions: a) they quickly reverted the banking system liquidity shortage generated by the SS; b) they delayed the current account reversal and dampen the negative effect of the SS on output; c) They contained the depreciation of the real exchange rate, limiting the risk of financial dollarization and finally d) they swiftly restored the solvency of the financial system. However, the achievements of these policies critically depended on the existence of three factors or buffers that allowed the Peruvian authorities to implemented these policies, and that further contributed to Peru's resilience to the SS: a) the large pool of international

reserves, b) the improvement on the fiscal position and c) the large investments on the tradable sector before the SS.

On one hand, without the large pool of international reserves, the central bank could not have been able to quickly restore banks' liquidity and a larger number of banks would have failed. In this scenario, the public's confidence on the banking sector could have been damaged and therefore, bank runs and a systemic banks' failure would have been more likely. Hence, the negative impact of the SS on consumption and investment would have been larger.

On the other hand, without both a counter-cyclical fiscal policy and a rapid recovery of exports after the SS, the fall in the Peruvian output growth rates would have been larger, in particular on the non-tradable sector. Therefore, the real exchange rate would have depreciated more, generating further damaging effects on banks' asset quality. In the next subsections we discuss in detail how Peru built these buffers that later were fundamental in the outcome of Peruvian authorities policy responses.

## 6.1. The accumulation of International Reserves

The Peruvian monetary authorities early recognized the importance of the accumulation of international reserves as a useful instrument to prevent damaging effects of a SS. This is clearly stated by Choy (1997) who explains that the central bank established a high marginal reserve requirement for foreign currency deposits since the beginning of the stabilization program, to build "a substantial reserve with which to meet unexpected foreign currency outflows which could put the financial system at risk"[43].

[43] The reserve requirement ratio was 45 percent in 1993, later during was reduced as part of the measures taken to confront the SS. De la Rocha (1998) also highlights the importance of international reserves as a buffer stock against sudden capital outflows in a highly dollarized economy as the Peruvian one.

More recently, Armas and Grippa (2005) also explicitly recognized the importance of high international reserves as part of the Central Bank's monetary policy strategy. As these authors explain, in highly dollarized economies, having a large pool of international reserves allows the central bank to act as lender of last resort in foreign currency, particularly in periods of capital outflows or financial distress. In this sense, monetary policy in Peru had a contingent ingredient, putting at the front of its policy strategy the stability of the financial system in times of financial distress. Through a high marginal reserve requirement ratio, the banking system accumulated US$ 3.7 billion as reserve deposits in the Central Bank until 1997, which represented 42 percent of banking deposits in foreign currency.

A high reserve requirement ratio was, however, not the only factor that contributed to the central bank accumulation of reserves. The drastic fall in inflation from more than 7 thousand percent in 1990 to 6.5 percent in 1997 also played a role. As a consequence of the latter, the credibility on the domestic currency was quickly reestablished and therefore the demand for domestic currency increased substantially.[44] The central bank absorbed progressively the reduction in foreign currency demand by injecting domestic currency through operations in the foreign exchange market. It is important to highlight that before 1997, the Central bank had a limited set of instruments to inject liquidity permanently. In particular it was forbidden to purchase public bonds for more that 5 percent of the monetary base.[45] This strategy allowed the central bank to accumulate reserves at an average pace of US$ 350 million per year, between 1992 and 1997, and, as a result, its foreign exchange position increased from a negative figure of US$ 55 million (net liabilities) at end 1991 to a positive US$ 2.3 billion at end 1997

The third way the central bank accumulated international reserves was through the accumulation of public sector deposit, mainly from privatization proceeds. Between

[44] Between 1994 and 1997 the velocity of circulation of domestic money decreased by 55 percent.
[45] This prohibition was established at the Central bank Charter, Law N° 26123.

1991 and 1997, the public sector privatized assets for a total value of more than US$ 6.1 billion and almost half of those proceeds (US$ 2.9 billion) were accumulated as foreign currency deposits in the Central Bank. It also maintained foreign currency deposits in the rest of the banking system for US$ 3.4 billion.

Accordingly, by the end of 1997 Peru had accomplished to accumulate an important level of international reserves. They represented 78 percent of the total banking sector's liquidity, almost 18 percent of GDP. In comparison with other Latin American economies, Peru was among those that had the largest levels of international reserves. As figure 7 shows, in Peru and Chile international reserves represented more that half of the banking sector deposits.

### 6.2. The Improvement on Fiscal Policy

The fiscal reforms of the early nineties were successful in reducing the large fiscal deficits that characterized the Peruvian fiscal policy during the eighties. In particular, the deficit of the non-financial public sector was drastically reduced from 8.9 percent in 1990 to a surplus of 0.1 percent in 1997. On this achievement were fundamental both, the increase in the non-financial public sector's revenues, which raised from 11.7 percent in 1990 to 16.0 percent in 1997, and the reduction on government's expenditures, from 17.9 to 13.2 percent during similar period. An important factor that contributed to the reduction on government's expenditures was the reduction on external debt's interest rate payments obtained after the normalization of Peru's access to international capital markets. During that period, interest payments went down from 7.7 percent of GDP to 1.8 percent of GDP.

The improvement on Peru's fiscal position had far-reaching effects on its macroeconomic stability. First, it contributed to the accumulation of the central bank's international reserves and government's liquidity at the financial system. Later, those

funds were fundamental to finance the counter-cyclical fiscal policy implemented by the government in response to the SS and also to support the consolidation programs of the financial system, as we discussed in section 4.2.

Second, previously to the SS, it contributed to avoid a further appreciation of the real exchange rate in response to the large amount of capital inflows[46] and later, during the SS -by facilitating the implementation of a counter-cyclical fiscal policy-, it helped to evade a larger depreciation of the real exchange rate. As Calvo et al (2004) points out, a counter-cyclical fiscal policy limits the depreciation of the real exchange rate because it prevents a larger fall of non-tradable goods' prices by compensating the reduction in aggregate private spending generated by the SS.

Third, it contributed to make the public debt sustainable, thereby reducing the government debt default risk. In this way, fiscal policy helped to reduce the possibility of transferring solvency risk to the private sector, in particular to the banking sector. Notably, in contrast to what happened in other Latin American economies where the government was a net debtor of the banking system, in Peru the public sector was a net creditor. In 1997 the total amount of public sector's deposits at private banks represented 17 percent of total banks' credit to the private sector (US $ 2393 million). Part of these deposits were used during 1998 and 1999 to provide liquidity, particularly to small banks, and another part was indirectly used to implement the solvency programs detailed in section 3.2. In fact, between April 1998 and December 1999 the public sector used US $ 1500 million to this purpose.

Finally, the improvements in the fiscal position helped to consolidate the credibility on the stabilization program implemented in Peru at the beginning of the

[46] There exist a large literature that suggests that fiscal policy is an important determinant of the real exchange rate. For instance, recently, Rabanal and Tuesta (2007) show that fiscal shocks explain 45 percent of real exchange rate fluctuations in the USA and Euro Area. Also, Betts and Kehoe (2006) and Burstein, Eichenbaum and Rebelo (2005) report that between one third and half of real exchange rate fluctuations are explained by the relative price of nontradable goods to tradable goods.

nineties.[47] Peru opted for a stabilization program based on the control of the growth rate of money, which had as a critical ingredient for its sustainability the improvement of the fiscal position.[48] If the fiscal position would not have improved, the progressive reduction on money growth rates necessary for the reduction on inflation, would had generated a larger cost in terms of output, since the necessarily credibility on the program would had been called into question.

### 6.3. Large Investments on the Tradable Sectors

One of the main objectives of structural reforms followed in the nineties was to provide a macroeconomic environment that promoted investments. Thus, in 1991, the government promulgated norms to favor private investments in several productive sectors and to guarantee judicial stability and equal treatment to foreign investments.[49] Then, in a context of increasing macroeconomic stability and legal support, the privatization process began in 1991 and investment flourished, mainly in the tradable sectors.

In the mining sectors, many big and medium size projects started operations or augmented their production during those years: HIERROPERU (iron producer) was acquired by the Chinese firm *Shougang* for US$ 120 million and committed with additional investments for US$ 150 million; *Minera Yanacocha SA* (gold producer) started operations in 1993; [50] *Cerro Verde* (copper producer) was acquired in 1993 by Cyprus Minerals Company for US$ 47 million and with investments commitments for

[47] In contrast with Argentina, where the stabilization program's credibility relied upon the sustainability of the currency board, in Peru, the stabilization program's credibility was based upon a deep fiscal and monetary policy reform

[48] Although the gains in credibility were the main motivation behind the improvement in the fiscal position, it is fair the say, however, that the government's lack of access to international capital markets until 1997 and the inexistent domestic debt market contributed to discipline its this behavior

[49] The norms referred are the *Decreto Legislativo 662* and *Decreto Legislativo 663*. Later, the articles 70 and 71 of the constitution promulgated in 1933 guaranteed the inviolability of private property and also an equal treatment to foreign investment.

[50] Yanacocha is nowadays the biggest gold producer in Latin America.

US$ 485 million; Southern Peru Copper Corporation acquired the Ilo Refinery for US$ 67 million in 1994 and expanded its operations in the following years;[51] Tintaya (copper producer) was acquired for US$ 273 million in 1994 with investments commitments for US$ 85 million.

Those investments and projects explain the average growth rates in mining from 1993 to 1997 of 10.1 percent per year. Certainly, they also let this sector to continue growing at a similar pace (9.9 percent average per year) during the SS of 1998-1999.[52]

The increase in capacity allowed exporting firms, in particular in the mining sector, to respond to the fall in terms of trade and to the SS by increasing their production levels. This response can be explained by the observation that this sector enjoys decreasing average costs. In that context, once the initial investments are made, a fall in prices requires an increase in production to maintain the level of utilities. In that sense, the previous investments in the tradable sectors acted as a buffer to the decline in economic activity during 1997-1999.

## 7. Concluding Remarks: Policy Lessons from the Peruvian Experience

Foreign Capital flows represent an important source of financing for economic growth in most emerging markets but also a source of vulnerability. The Peruvian experience, evaluated in this paper, teaches several important lessons on how macroeconomic policy can be used to induce a positive balance. The first one and perhaps the most important is that good macroeconomic policy can provide an effective protection against SS, even in highly dollarized economies. In the case of Peru the

[51] Southern Copper (before Southern Peru Copper Corporation) is nowadays the fifth largest producer of copper in the world.

[52] The figures correspond to metallic mining. Thus, it excludes hydrocarbons.

following particular features of the monetary and fiscal policies put in place before the SS were particular important:

- The reduction on foreign external debt, which was instrumental to the improvement on government's saving capacity.
- The rapid reduction on inflation that helped to build credibility on monetary policy and facilitated a rapid recovery of the levels of financial intermediation.
- The high rates of reserve requirement in foreign currency deposits, which were fundamental to maintain reasonable levels of international liquidity at the banking system.
- The incentives for investments provided at both, the tradable sector and the banking sector, which permitted to increase the resilience of these sectors to the SS and to the fall in terms of trade.
- The prudential banking regulation, which helped to protect banks' assets quality.

Second, dollarization is not a necessary condition for a financial crisis. In spite of its high degree of financial dollarization, Peru was able to avoid a financial crisis by the appropriate combination of lender-of-last-resort policies in foreign currency and of an exchange rate policy that limited the volatility of the exchange rate. By rapidly injecting foreign currency reserves to the banking system, the monetary authorities could effectively avoid the failure of those banks that were more indebted and in this way prevented a large contraction in domestic banking credit.

However, the effectiveness in the use of international reserves may depend on the particular instrument chosen. The Peruvian experience shows that direct and permanent injections of foreign liquidity –in this case, through a continuous reduction of the average and marginal reserve requirement ratios- were more effective to offset the negative effects of the SS on the banking system than the direct sell of foreign currency

on the exchange market. This is so because directly injections of foreign liquidity allow banks to increase liquidity in foreign currency without reducing their liquidity in domestic currency.[53]

Third, a government's buffer stock is an effective tool for reducing the economy's vulnerabilities. As we discussed above, during 1998 to 2000, the Peruvian government was able to sustain economic growth by using a counter-cyclical policy that was almost fully financed with its accumulated deposits at the central bank. Moreover, this buffer stock allowed the government to participate effectively in the consolidation of the financial system, without relaying on inflationary financial sources.

Fourth, building credibility has an enormous pay-off. The public's confidence on the Peruvian Central bank on its capability to keep inflation under control even during periods of large exchange rate volatility and to act as lender of last resort in foreign currency avoided both, a larger outflow of capital and bank runs. Finally, coordination between the central bank and the government is fundamental during periods of financial distress. In the case of Peru, the government contributed to provide and redistribute liquidity among banks by converting its short-term foreign-currency deposits into long-term domestic-currency deposits.

Interestingly, the Peruvian experience is also illustrative on the type of policies that could amplify the effects of the sudden stop, and therefore they should be avoided. For instance:

- The discriminatory treatment of the reserve requirement that affected only deposits and not foreign debt, which induced banks to resort on this type of funding.
- The management of the public sector deposits, which concentrated a large amount of deposits on small banks. The auction mechanism used by the public

[53] Calvo (2006) also discusses the relative advantages and disadvantes of using foreign exchange operations verus other forms of foreign currency liquidity provision. In particular, he considers that this second type of operations might be more effective if the central bank acts timingly

sector to allocated deposits considered as the most important criteria for allocating those deposits the level of the interest rates. In that context, when the public sector withdrew its deposits from these banks, banks' liquidity problems were aggravated

- The lack of a contingency clause to call for an automatic reduction of banks' reserves, which delayed the injection of liquidity to banks and consequently magnified the impact of the SS.[54]

A final issue to address is whether or not the Peruvian economy in 2007 is better prepared to resist a sudden stop of capital flows of similar magnitude to that of 1998-1999. To answer this question is important to evaluate whether or not the Peruvian economy has been able, on one hand, to limit its vulnerabilities and on the other, to maintain those buffers that helped to cushion the impact of the SS during 1998-2000.

Nowadays, as during the nineties, Peru's economic performance has been benefited from good external conditions. However, in contrast with the nineties, when large capital flows were the main driven force behind Peru's high growth rates, now that driving force is the persistent increase on terms of trade. This is a fundamental difference since now economic growth is being based on profit accumulation rather than debt accumulation. Indeed, capital flows to Peru in 2006 represented only 0.9 percent of GDP and the current account exhibit a surplus of 2.6 percent. Moreover, international reserves are larger than in 1997 and monetary policy commitment to price stability has been further reinforced by the adoption of the central bank of a fully-fledged inflation targeting-regime.

Concerning international reserves' composition, the public sector's deposits share on international reserves is smaller in 2006 than in 1997, either in absolute value or in relative terms. In particular, foreign-currency public sector's deposits at the Central Bank were US $ 4.4 billion in 1998 and represented approximately 40 percent of total

[54] See Velarde and Rodriguez (2001)

reserves. Instead, at end 2006, public deposits reached US $ 2.7 million and represented only 16 percent of total reserves. Hence, comparing with 1997, the public sector has less international liquidity to use, either to implement counter-cyclical fiscal policy or to participate to cover the financial costs of banking consolidation programs as it did in 1999 and 2000.

Also, public sector's deposits at the banking system are smaller today in relative terms than in 1997. At end 1997, total deposits of the public sector amounted US$ 7.5 billion and represented half of total liquidity of the financial sector. At end 2006, total deposits of the public sector amount US$ 8.3 billion and represent 22 percent of total liquidity. Then, again, the public sector's relative ability to provide liquidity to the banking sector has diminished. Regarding the public sector's economic balance, the non-financial public sector exhibited a surplus of 0.1 percent in 1997, whereas in 2006 its surplus reached 2.1 percent of GDP. Also public external debt, in terms of GDP was lower in 2006 (24 percent of GDP) than that of 1997 (32 percent).

Importantly, dollarization ratios have fallen since 1997, from 73 percent to 52 percent in 2006, reducing the fragility of the domestic economy to abrupt changes in the real exchange rate. This reduction on dollarization rations has been promoted by the adoption of a fully-fledge inflation-targeting regime since 2002. This new monetary framework has been successful in anchoring not only short-term inflationary expectations but mainly long-term. As result, the long-term government debt' market has shown continuous growth since 2002, further reducing the vulnerability of the financial system.

Considering all these improvements on the Peruvian macroeconomic condition, it is safe to say that in comparison with the nineties, the probability of a sudden stop of capital flows deeply affecting the economy is much lower nowadays than then.

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# Appendix A: Tables

## Table 1: Sudden Stop of Capital Flows

| | 1994-1997 | | 1998-2001 | | Change[1/] | | Contribution[2/] |
|---|---|---|---|---|---|---|---|
| | US $ Millions | (% of GDP) | US $ Millions | (% of GDP) | US $ Millions | ( %) | ( %) |
| **1. -Long-Term Capital Flows** | **13857** | **6,5** | **7035** | **3,3** | **-6822** | **-49** | **55** |
| 1.1- Private Capital | 14201 | 6,7 | 5947 | 2,8 | -8254 | -58 | 67 |
| 1.1.1- Direct Investment | 11 381 | 5,3 | 5 273 | 2,4 | -6 107 | -54 | 49 |
| 1.1.2.- Loans | 1 625 | 0,8 | 1 962 | 0,9 | 337 | 21 | -3 |
| 1.1.3.- Bonds | 317 | 0,1 | - 40 | 0,0 | - 357 | -113 | 3 |
| 1.1.4.- Stocks | 1 108 | 0,5 | - 287 | -0,1 | -1 395 | -126 | 11 |
| 1.1.5.- Others | - 230 | -0,1 | - 962 | -0,4 | - 732 | 319 | 6 |
| 1.2 Public | -344 | -0,2 | 1088 | 0,5 | 1433 | -416 | -12 |
| 1.2.1.-International Institutions | 1897 | 0,9 | 2069 | 1,0 | 172 | 9 | -1 |
| 1.2.2.- Paris Club | -1247 | -0,6 | -194 | -0,1 | 1053 | -84 | -9 |
| 1.2.3.-Bonds | 0 | 0,0 | -269 | -0,1 | -269 | n.a. | 2 |
| 1.2.4.-Others | -994 | -0,5 | -518 | -0,2 | 477 | -48 | -4 |
| | | 0,0 | | 0,0 | | | |
| **2.- Short-Term Capital** | **3445** | **1,6** | **-2094** | **-1,0** | **-5539** | **-161** | **45** |
| 2.1.- Private Banks | 2491 | 1,2 | -1924 | -0,9 | -4415 | -177 | 36 |
| Assets | 72 | 0,0 | -172 | -0,1 | -244 | -339 | 2 |
| Liabilities | 2419 | 1,1 | -1752 | -0,8 | -4171 | -172 | 34 |
| 2.2.- Banco de la Nación | -662 | -0,3 | 143 | 0,1 | 805 | -122 | -7 |
| Assets | -190 | -0,1 | 184 | 0,1 | 374 | -197 | -3 |
| Liabilities | -472 | -0,2 | -42 | 0,0 | 431 | -91 | -3 |
| 2.3.- No Financial Companies | 264 | 0,1 | -110 | -0,1 | -374 | -142 | 3 |
| Assets | -5 | 0,0 | -1 | 0,0 | 4 | -80 | 0 |
| Liabilities | 269 | 0,1 | -109 | -0,1 | -378 | -141 | 3 |
| **TOTAL (1) +(2)** | **17302** | **8,1** | **4941** | **2,3** | **- 12 361** | **-71** | **100** |

1/ 2001-1998 versus 1994-1997.

2/ The contribution of the change to the total fall in capital flows.

*Source: Central Reserve Bank of Peru*

## Table 2: Sudden Stop of Capital Flows 1997-1999

| | 1997 | | 1998 | | 1999 | | Change[1/] | | Contribution[2/] |
|---|---|---|---|---|---|---|---|---|---|
| | US $ Millions | (% of GDP) | US $ Millions | (% of GDP) | US $ Millions | (% of GDP) | US $ Millions | ( %) | ( %) |
| **1. -Long-Term Capital Flows** | **3337** | **5,6** | **1863** | **3,3** | **2059** | **4,0** | **-1278** | **-38** | **24** |
| 1.1- Private Capital | 2833 | 4,8 | 1805 | 3,2 | 1678 | 3,3 | -1155 | -41 | 22 |
| 1.1.1- Direct Investment | 2 054 | 3,5 | 1 582 | 2,8 | 1 812 | 3,5 | - 242 | -12 | 5 |
| 1.1.2.- Loans | 464 | 0,8 | 630 | 1,1 | 158 | 0,3 | - 307 | -66 | 6 |
| 1.1.3.- Bonds | 250 | 0,4 | 122 | 0,2 | - 18 | 0,0 | - 268 | -107 | 5 |
| 1.1.4.- Stocks | 156 | 0,3 | - 346 | -0,6 | - 107 | -0,2 | - 263 | -168 | 5 |
| 1.1.5.- Others | - 92 | -0,2 | - 184 | -0,3 | - 167 | -0,3 | - 75 | 82 | 1 |
| 1.2 Public | 505 | 0,9 | 58 | 0,1 | 381 | 0,7 | -124 | -25 | 2 |
| 1.2.1.-International Institutions 3/ | 1078 | 1,8 | 349 | 0,6 | 686 | 1,3 | -392 | -36 | 7 |
| 1.2.2.- Paris Club | -265 | -0,4 | -251 | -0,4 | -37 | -0,1 | 228 | -86 | -4 |
| 1.2.3.-Bonds | 0 | 0,0 | 0 | 0,0 | -269 | -0,5 | -269 | n.a. | 5 |
| 1.2.4.-Others | -308 | -0,5 | -40 | -0,1 | 1 | 0,0 | 309 | -100 | -6 |
| **2.- Short-Term Capital** | **2471** | **4,2** | **-72** | **-0,1** | **-1476** | **-2,9** | **-3947** | **-160** | **76** |
| 2.1.- Private Banks | 1345 | 2,3 | -139 | -0,2 | -1413 | -2,7 | -2758 | -205 | 53 |
| Assets | -125 | -0,2 | -34 | -0,1 | -369 | -0,7 | -244 | 195 | 5 |
| Liabilities | 1470 | 2,5 | -105 | -0,2 | -1044 | -2,0 | -2514 | -171 | 48 |
| 2.2.- Banco de la Nación | 1163 | 2,0 | 3 | 0,0 | 92 | 0,2 | -1071 | -92 | 20 |
| Assets | 1167 | 2,0 | 41 | 0,1 | 94 | 0,2 | -1073 | -92 | 21 |
| Liabilities | -5 | 0,0 | -39 | -0,1 | -2 | 0,0 | 3 | -56 | 0 |
| 2.3.- No Financial Companies | 176 | 0,3 | 37 | 0,1 | -104 | -0,2 | -280 | -159 | 5 |
| Assets | -1 | 0,0 | -9 | 0,0 | 13 | 0,0 | 14 | -2267 | 0 |
| Liabilities | 177 | 0,3 | 46 | 0,1 | -117 | -0,2 | -294 | -166 | 6 |
| **TOTAL (1) +(2)** | **5808** | **9,8** | **1792** | **3,2** | **583** | **1,1** | **- 5 226** | **-90** | **100** |

1/ 1999 versus 1997.

2/ The contribution of the change to the total fall in capital flows.

3/ The figure in 1997 includes disbursements for US$ 690 million to cover the costs of the Brady Plan.

*Source: Central Reserve Bank of Peru*

**Table 3: Growth, Investment and Current Account Reversals**

| | GDP (avg annual % change) | | | Investment (avg annual % change) | | | Current Account (% of GDP) | | | RER (Depreciation) |
|---|---|---|---|---|---|---|---|---|---|---|
| Country | 1991-1997 | 1999-2002 | Reversal | 1991-1997 | 1999-2002 | Reversal | II-1998 * | IV-2002 * | Reversal | Dec02/Jun98 |
| Argentina | 6.1 | -4.9 | -10.9 | 14.8 | -17.9 | -32.7 | -4.7 | 8.9 | 13.6 | 185.3 |
| Brazil | 3.1 | 2.0 | -1.1 | 4.3 | 0.1 | -4.2 | -3.9 | -1.7 | 4.2 | 151.0 |
| Chile | 8.3 | 2.2 | -6.2 | 13.7 | -5.0 | -18.8 | -6.5 | -1.3 | 5.2 | 47.5 |
| Colombia | 4.0 | 0.4 | -3.5 | 9.3 | -2.2 | -11.5 | -6.5 | -1.8 | 4.7 | 61.2 |
| Mexico | 2.8 | 2.7 | -0.1 | 6.9 | 1.6 | -5.3 | -3.0 | -2.2 | 0.8 | -13.9 |
| Peru | 5.3 | 2.5 | -2.8 | 11.5 | -6.5 | -18.0 | -7.0 | -2.0 | 5.0 | 22.4 |
| Venezuela | 3.4 | -2.2 | -5.6 | 18.5 | -4.8 | -23.4 | -2.5 | 9.2 | 11.7 | 20.3 |
| Average | 4.7 | 0.4 | -4.3 | 11.3 | -5.0 | -16.3 | -4.9 | 1.3 | 6.5 | 67.7 |

*Sources: corresponding Central Banks. Taken from Calvo and Tanzi (2005).*

## Table 4a : Selected Indicators of the Banking System

| | Non Performing Loans (as % of total loans) | Provisions (as % of non performin loans) | Net Profits (as % of net worth) | Leverage (liabilities/net worth) | Growth of Liquidity in Domestic Currency (%) | Growth of Liquidity in Foreign Currency (%) |
|---|---|---|---|---|---|---|
| 1993 | 9.3 | | | | | |
| 1994 | 8.4 | 68.9 | 14.4 | 11.2 | | |
| 1995 | 6.3 | 75.9 | 18.9 | 10.6 | | |
| 1996 | 5.4 | 78.6 | 21.6 | 10.5 | | |
| 1997 | 5.8 | 79.6 | 19.0 | 9.8 | | |
| 1998 | 6.5 | 81.1 | 11.7 | 9.3 | | |
| 1999 | 9.5 | 79.6 | 5.3 | 8.7 | | |
| 2000 | 10.1 | 90.3 | 3.6 | 8.1 | | |
| 2001 | 10.0 | 103.8 | 3.7 | 7.9 | 22.6 | 46.0 |
| 2002 | 8.5 | 122.4 | 6.8 | 7.7 | 23.5 | 49.3 |
| 2003 | 7.5 | 130.5 | 8.7 | 7.6 | 32.9 | 43.9 |
| 2004 | 5.1 | 149.5 | 11.2 | 7.1 | 44.8 | 44.3 |
| 2005 | 3.1 | 194.6 | 16.3 | 7.6 | 38.6 | 49.2 |
| 2006 | 2.0 | 228.9 | 23.7 | 8.0 | 43.1 | 45.0 |

*Source: Peruvian Superintendence of Banks*

## Table 4b : Banking Credit to the Private and Public Sector

| | S/. Million | | | Annual Growth Rates | | |
|---|---|---|---|---|---|---|
| | **Total** | Domestic Currency | Foreign Currency | **Total** | Domestic Currency | Foreign Currency |
| 1992 | **5706** | 1522 | 2567 | | | |
| 1993 | **9665** | 2245 | 3451 | **69.4%** | 47.5% | 34.5% |
| 1994 | **15135** | 4070 | 5076 | **56.6%** | 81.3% | 47.1% |
| 1995 | **22061** | 6429 | 6767 | **45.8%** | 58.0% | 33.3% |
| 1996 | **33714** | 9828 | 9187 | **52.8%** | 52.9% | 35.8% |
| 1997 | **44911** | 12091 | 12066 | **33.2%** | 23.0% | 31.3% |
| 1998 | **54987** | 13130 | 13288 | **22.4%** | 8.6% | 10.1% |
| 1999 | **59911** | 13314 | 13276 | **9.0%** | 1.4% | -0.1% |
| 2000 | **59465** | 13624 | 12986 | **-0.7%** | 2.3% | -2.2% |
| 2001 | **57440** | 14387 | 12515 | **-3.4%** | 5.6% | -3.6% |
| 2002 | **60054** | 17107 | 12236 | **4.6%** | 18.9% | -2.2% |
| 2003 | **61358** | 20183 | 11900 | **2.2%** | 18.0% | -2.7% |
| 2004 | **64271** | 23795 | 12340 | **4.7%** | 17.9% | 3.7% |
| 2005 | **75011** | 30114 | 13089 | **16.7%** | 26.6% | 6.1% |
| 2006 | **86575** | 41436 | 14106 | **15.4%** | 37.6% | 7.8% |

*Source: Central Reserve Bank of Peru*

**Table 5a: Growth Accounting by Productive Sector[1/]**

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1. Tradable Sector** | **0.8** | **0.6** | **0.8** | **0.1** | **1.6** | **0.8** | **0.5** | **1.3** | **0.5** | **0.6** | **0.9** | **0.7** |
| 1.1. Agriculture | 0.7 | 0.4 | 0.4 | 0.0 | 0.8 | 0.6 | 0.1 | 0.5 | 0.2 | 0.2 | 0.4 | 0.6 |
| 1.2. Fishing | -0.1 | 0.0 | 0.0 | -0.1 | 0.1 | 0.1 | -0.1 | 0.0 | -0.1 | 0.1 | 0.0 | 0.0 |
| 1.3. Mining | 0.2 | 0.2 | 0.4 | 0.2 | 0.6 | 0.1 | 0.5 | 0.7 | 0.3 | 0.3 | 0.5 | 0.1 |
| **2. Non-tradable Sector** | **6.5** | **1.9** | **5.2** | **-0.8** | **-0.2** | **1.9** | **-0.3** | **3.5** | **3.0** | **4.0** | **4.7** | **6.7** |
| 2.1. Manufacture | 0.9 | 0.2 | 0.8 | -0.5 | -0.1 | 0.8 | 0.1 | 0.9 | 0.5 | 1.1 | 1.0 | 1.0 |
| 2.2. Building | 1.0 | -0.1 | 0.9 | 0.0 | -0.7 | -0.4 | -0.3 | 0.4 | 0.2 | 0.2 | 0.4 | 0.7 |
| 2.3. Commerce | 1.6 | 0.1 | 1.1 | -0.5 | -0.1 | 0.5 | 0.1 | 0.5 | 0.4 | 0.8 | 0.7 | 1.7 |
| 2.4. Electricity and water supply | 0.0 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| 2.5. Other services | 3.0 | 1.5 | 2.1 | 0.0 | 0.7 | 0.8 | -0.2 | 1.6 | 1.8 | 1.7 | 2.4 | 3.2 |
| **3. Inventories** | **1.3** | **0.1** | **0.8** | **0.0** | **-0.5** | **0.3** | **-0.1** | **0.4** | **0.5** | **0.6** | **0.8** | **0.6** |
| **4. Gross Domestic Product (1+2+3)** | **8.6** | **2.5** | **6.9** | **-0.7** | **0.9** | **3.0** | **0.2** | **5.2** | **3.9** | **5.2** | **6.4** | **8.0** |

1/ Real growth of productive sectors as percentage of total GDP from previous year.

*Source: Peruvian Institute of Statistics (INEI) and Central Reserve Bank of Peru (BCRP).*

## Table 5b: Growth Accounting by Spending Component[1/]

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **GLOBAL DEMAND (1+2)** | **13.0** | **2.5** | **9.1** | **-0.2** | **-2.1** | **3.6** | **0.7** | **5.6** | **4.5** | **7.0** | **8.3** | **10.3** |
| 1. Internal demand | 12.3 | 1.4 | 7.4 | -1.0 | -3.2 | 2.3 | -0.6 | 4.4 | 3.4 | 4.3 | 5.3 | 10.1 |
| a. Private consumption | 7.0 | 2.3 | 3.3 | -0.7 | -0.3 | 2.6 | 1.0 | 3.3 | 2.2 | 2.5 | 3.1 | 4.3 |
| b. Public consumption | 0.7 | 0.4 | 0.7 | 0.2 | 0.3 | 0.3 | -0.1 | 0.0 | 0.3 | 0.4 | 0.9 | 0.8 |
| c. Gross internal investment | 4.5 | -1.2 | 3.4 | -0.6 | -3.3 | -0.6 | -1.5 | 1.1 | 0.8 | 1.5 | 1.4 | 5.0 |
| Gross Fixed Investment | 4.6 | -0.7 | 3.4 | -0.3 | -2.7 | -1.0 | -1.6 | -0.2 | 1.1 | 1.5 | 2.4 | 3.6 |
| - Private | 4.5 | -0.4 | 2.9 | -0.5 | -3.0 | -0.3 | -0.7 | -0.1 | 1.0 | 1.3 | 2.1 | 3.2 |
| - Public | 0.2 | -0.3 | 0.5 | 0.1 | 0.3 | -0.8 | -0.9 | -0.1 | 0.1 | 0.2 | 0.3 | 0.4 |
| Change in inventories | -0.1 | -0.5 | 0.0 | -0.2 | -0.6 | 0.5 | 0.1 | 1.3 | -0.3 | 0.0 | -1.1 | 1.3 |
| 2. Exports | 0.7 | 1.1 | 1.7 | 0.8 | 1.1 | 1.3 | 1.2 | 1.2 | 1.1 | 2.7 | 3.0 | 0.2 |
| **GLOBAL SUPPLY (3+4)** | **13.0** | **2.5** | **9.1** | **-0.2** | **-2.1** | **3.6** | **0.7** | **5.6** | **4.5** | **7.0** | **8.3** | **10.3** |
| **3. Gross Domestic Product (1+2-4)** | **8.6** | **2.5** | **6.9** | **-0.7** | **0.9** | **3.0** | **0.2** | **5.2** | **3.9** | **5.2** | **6.4** | **8.0** |
| 4. Imports | 4.4 | 0.0 | 2.2 | 0.5 | -3.0 | 0.6 | 0.5 | 0.5 | 0.6 | 1.8 | 1.9 | 2.3 |

1/ Real growth of spending components as percentage of total GDP from previous year.

*Source: Peruvian Institute of Statistics (INEI) and Central Reserve Bank of Peru (BCRP).*

**Table 6: Public Sector Operations (% of GDP)**

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **I. Primary Balance** | **0.3** | **1.6** | **2.1** | **1.2** | **-0.9** | **-0.8** | **-0.2** | **-0.1** | **0.4** | **1.0** | **1.6** | **3.9** |
| 1. Central Government Primary Balance | 0.0 | 1.1 | 1.0 | 0.7 | -1.0 | -0.6 | -0.6 | -0.2 | 0.2 | 0.6 | 1.1 | 3.2 |
| a. Current Revenues | 15.3 | 15.8 | 16.0 | 15.8 | 14.6 | 14.9 | 14.3 | 14.2 | 14.8 | 14.9 | 15.7 | 17.3 |
| i. Tax Revenues | 13.6 | 14.0 | 14.2 | 13.9 | 12.7 | 12.2 | 12.4 | 12.0 | 12.8 | 13.1 | 13.6 | 14.9 |
| ii. Non tax Revenues | 1.7 | 1.8 | 1.8 | 1.8 | 2.0 | 2.7 | 1.9 | 2.2 | 1.9 | 1.8 | 2.1 | 2.4 |
| b. Non Financial Expenditure | 15.5 | 15.2 | 15.1 | 15.3 | 16.0 | 15.8 | 15.1 | 14.6 | 14.7 | 14.4 | 14.7 | 14.2 |
| i. Current | 11.4 | 11.5 | 11.4 | 11.9 | 12.6 | 12.9 | 12.9 | 12.6 | 12.8 | 12.6 | 12.8 | 12.2 |
| ii. Capital | 4.2 | 3.7 | 3.7 | 3.4 | 3.4 | 2.8 | 2.2 | 2.0 | 1.9 | 1.8 | 1.9 | 2.0 |
| c. Capital Revenues | 0.2 | 0.4 | 0.1 | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 |
| 2. Primary Balance of the Rest of the Public | 0.4 | 0.5 | 1.1 | 0.4 | 0.2 | -0.2 | 0.4 | 0.0 | 0.2 | 0.4 | 0.5 | 0.7 |
| II. Interest | 3.5 | 2.7 | 2.0 | 2.2 | 2.4 | 2.5 | 2.3 | 2.1 | 2.2 | 2.0 | 1.9 | 1.9 |
| **III. Overall balance (I-II)** | **-3.2** | **-1.1** | **0.1** | **-1.0** | **-3.2** | **-3.3** | **-2.5** | **-2.2** | **-1.7** | **-1.0** | **-0.3** | **2.1** |
| IV. Net Financing | 3.2 | 1.1 | -0.1 | 1.0 | 3.2 | 3.3 | 2.5 | 2.2 | 1.7 | 1.0 | 0.3 | -2.1 |
| 1. External financing | 2.5 | 0.8 | -0.4 | 0.4 | -0.2 | 1.2 | 0.9 | 2.1 | 1.4 | 1.5 | -1.5 | -0.7 |
| 2. Domestic net financing | -1.1 | -3.6 | -0.6 | 0.1 | 2.7 | 1.3 | 1.0 | -0.6 | 0.3 | -0.6 | 1.7 | -1.4 |
| 3. Privatization | 1.8 | 3.9 | 0.9 | 0.5 | 0.8 | 0.8 | 0.6 | 0.7 | 0.1 | 0.2 | 0.1 | 0.1 |

*Source: Central Reserve Bank of Peru*

## Table 7: Balance of Payments

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Current Account** | **-8.6** | **-6.5** | **-5.7** | **-5.8** | **-2.7** | **-2.9** | **-2.3** | **-2.0** | **-1.6** | **0.0** | **1.4** | **2.6** |
| Goods and Servives | -5.6 | -4.8 | -4.2 | -5.5 | -2.3 | -2.1 | -2.1 | -1.2 | 0.0 | 3.3 | 5.6 | 8.5 |
| Exports | 12.4 | 13.1 | 14.2 | 13.3 | 15.0 | 16.0 | 15.7 | 16.1 | 17.6 | 21.2 | 24.8 | 28.1 |
| Imports | -17.9 | -17.8 | -18.4 | -18.7 | -17.3 | -18.1 | -17.8 | -17.3 | -17.6 | -18.0 | -19.2 | -19.5 |
| Factor Payments | -4.6 | -3.4 | -3.1 | -2.1 | -2.2 | -2.6 | -2.0 | -2.6 | -3.5 | -5.3 | -6.4 | -8.2 |
| Transfers | 1.6 | 1.6 | 1.6 | 1.7 | 1.9 | 1.9 | 1.9 | 1.8 | 2.0 | 2.1 | 2.2 | 2.3 |
| **Capital Account** | **7.0** | **7.0** | **9.8** | **3.2** | **1.1** | **1.9** | **2.9** | **3.2** | **1.1** | **3.1** | **0.2** | **0.9** |
| Private sector | 5.7 | 7.8 | 4.8 | 3.2 | 3.3 | 2.8 | 1.8 | 2.7 | -0.2 | 1.3 | 2.3 | 2.3 |
| Public sector | -0.3 | -0.7 | 0.9 | 0.1 | 0.7 | 0.5 | 0.7 | 1.9 | 1.0 | 1.4 | -1.8 | -0.8 |
| Short-term capital | 1.6 | 0.0 | 4.2 | -0.1 | -2.9 | -1.4 | 0.4 | -1.4 | 0.2 | 0.3 | -0.3 | -0.6 |
| **Exceptional Financing** | **2.8** | **1.6** | **-1.2** | **0.4** | **0.0** | **-0.1** | **0.0** | **0.0** | **0.1** | **0.0** | **0.1** | **0.0** |
| **Flow of International Reserves** | **-1.7** | **-3.5** | **-2.9** | **1.8** | **1.5** | **0.4** | **-0.8** | **-1.5** | **-0.8** | **-3.4** | **-2.1** | **-2.9** |
| **Errors and Omissions** | **0.5** | **1.4** | **0.0** | **0.5** | **0.0** | **0.7** | **0.2** | **0.2** | **1.1** | **0.2** | **0.4** | **-0.6** |

*Source: Central Reserve Bank of Peru*

# Appendix B

**Measures to confront the crisis of 1998**

| | Entity | Legal Instrument | Date |
|---|---|---|---|
| **Liquidity Measures** | | | |
| 1. Foreign exchange interventions. | BCRP | NA | Jun 98-Mar 99 |
| 2. Opening of window for credit facilities in foreign exchange. | BCRP | NA | 02-Sep-98 |
| 3. Reduction of reserve requirements for deposits in foreign currency: reduction of marginal reserve requirements from 35 to 20 percent and average and reduction of 4,5 percentual points of average reserve requirements . | BCRP | Circular Nº 014-98-EF/90<br>Circular Nº 020-98-EF/90<br>Circular Nº 024-98-EF/90<br>Circular Nº 028-98-EF/90 | 30-Jun-98<br>07-Sep-98<br>23-Oct-98<br>04-Dec-98 |
| 4. Use of public funds as a source of liquidity: conversion of foreign exchange deposits into local currency deposits at longer maturities and additional fresh resuorces from Mivivienda and Fonafe (S/. 385 million chaneled through Cofide). | Ministry of Finance | DU 052-98<br>DS 115-98-EF | 30-Sep-98<br>07-Dec-98 |
| 5. Minimum liquidity requirements. | SBS | Resolución SBS Nº 622-98 | 30-Jun-98 |
| 6. Refinancing with only one notch downgrading. | SBS | Resolución SBS Nº 641-99 | 14-Jul-99 |
| 7. Temporary portfolio purchase program. | Ministry of Finance | DS Nº 114-98-EF<br>DS Nº 099-99-EF | 05-Dec-98<br>18-Jun-99 |
| **Solvency Measures** | | | |
| 8. Provision requirements. | SBS | Resolución SBS Nº 572-97 | 20-Aug-97 |
| 9. Limits to global position in foreign exchange. | SBS | Circular Nº B-2024-98 | 14-Oct-98 |
| 10. Program for Net Wealth Consolidation | Ministry of Finance | DU Nº 034-99 | 25-Jun-99 |
| 11. Program for the Consolidation of the Financial System | Ministry of Finance | DU Nº 108-2000 | 27-Nov-2000 |
| 12. Program for Financial Rescue of Agricultural Companies and Program for the Net Worth Strenghtening of Commercial Companies. | Ministry of Finance | DU Nº 059-2000 | 15-Aug-2000 |

NA = Not applicable.

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