DISINFLATION PROGRAMS: LESSONS FROM 2001 CRISIS IN TURKEY

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ABSTRACT

Turkey initiated an exchange based disinflation program at December 1999 which is supervised by IMF and had to abandon it at February 2001, before the 18 month time of the program is completed. The failure of the program was mainly due to its design flaw beside the other effects like the inability of Turkish government to apply the program properly or the external macroeconomic events. This paper focuses of two important weaknesses of the program, which are the lack of proper exit strategy and the liquidity generating mechanism of the Central Bank, and suggests an earlier exit and capital controls as cures.

INTRODUCTION

At the end of 1999, Turkey embarked on an exchange rate based disinflation program backed by a three year stand by arrangement with the IMF. A tight fiscal stance, structural reform and a firm exchange rate commitment were the main pillars of the program which also featured a quasi-currency board arrangement for the central bank. The program established a framework for using the exchange rate as nominal anchor and supporting the exchange rate policy with various structural arrangements and with strict finance policy. Set off a smooth start, the program seemed on track with steadily falling interest rates and inflation until November 2000 when only eleven months into its implementation it floundered in the midst of a severe liquidity crunch (Alper, 2001). However, the crisis preceded by a financial turmoil that burst in the second half of November 2000 just at the midst of an exchange rate based stabilization program. The pressure in the market calmed down soon after a new letter of intent was presented to International Monetary Fund (Akçay et al. 2001). However, as of the end of December, the average interest rates, both the overnight rate and secondary market bond rate, were almost four times higher than their levels at the beginning of November and more than five times higher than the preannounced year-end depreciation rate of the lira. This unsustainable situation ended on the February 19, 2001, when the

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prime minister announced that there was a severe political crisis that ignited a crisis in the highly alerted markets due to what had happened at the end of the preceding year.

If we look at the story of the disinflation program in Turkey, we can make a brief summary as: the disinflation program based on the exchange rate anchor and the measures of the fiscal policy and the structural reforms are announced. The program more or less eliminates the foreign exchange rate risk. It also reduces the default risk due to the fiscal policy measures and the promised structural reforms. The reduction in the risk premium leads to a capital inflow that in turn leads to an increase in the liquidity and a reduction in the nominal as well as the real interest rates. This is because according to the stabilization program the Central Bank of Turkey has to operate like a quasi-currency board. The reduction in the interest rate further reduces the sovereign risk since the government is able to borrow at a lower cost. The reduction in future interest burden results in further inflows. This leads to interest rate undershooting its medium-term equilibrium value. The capital inflow ceases until further progress is made and further reduction in the sovereign risk takes place. Due to seasonal or some external factors as well as delayed reforms and stabilizations, an outflow starts, liquidity in the system is reduced, overnight interest rates increase which lead to sales of government securities by banks who are desperately seeking funds and are not able to obtain from the inter-bank market because their credit lines are cut due to increase in vulnerability. The prices of the government securities fall and the monetary authorities cannot intervene since there is a ceiling on the net domestic assets of the Central bank. The vulnerability of the whole banking system increases, the inter-bank market becomes dysfunctional. A liquidity crisis occurs. Since the banks that are financially distressed are regarded as a liability to the government budget, the sovereign risk rises. Capital outflow leads to a reduction in the international reserves causing an upward pressure on the exchange rate risk, prompting a speculative attack. The central bank has to abandon the exchange rate anchor.

There is huge literature about the 2001 crisis in Turkey; the crisis has been a popular subject among the economists both from theoretical and empirical views. Most of them try to figure out the causes of the crisis and find a guilty about that. They criticize the IMF, the Turkish Government or the external factors, present the design flaws of the disinflation program and conclude by addressing the guilty or saying that this and that flaws should not be done in the future programs. However, this paper, different from others, focuses on crisis prevention and suggests solutions about two important weaknesses of the program; lack of successful exit strategy and lack of control of monetary base by Central Bank.

The outline of the paper is as follows: In the following section, characteristics of some other crises in the developing countries such as Mexico and Brazil are compared with Turkish experience and present some common results of the exchange rate based stabilization programs. The third section presents disinflation program and its implications about the exchange rate, inflation and monetary

base. Fourth section analyzes the flaws in the design of the program and tests some indicators about crisis to decide whether it can be prevented or not. Fifth section search for a better exit strategy from a peg system. Sixth section suggests controlling the capital flows in order to escape from this kind of crises and final section concludes.

OTHER EXCHANGE RATE CRISES IN THE WORLD

Turkey is not the only country that has experienced failed stabilization attempts. In the last four decades, countries with the chronic inflation problem have undertaken repeated stabilization attempts and most of these attempts have resulted in balance of payments crises, loss of international reserves and costly devaluations. Ertuğrul and Yeldan, (2003) thought that, the programs that are based on an exchange rate anchor "initially generate a demand-based expansion accompanied by rising and usually unsustainable trade and current deficits followed by a contractionary phase; the magnitude of which depends on the size of the earlier external deficits. During the course of implementation, these programs are often associated with the build-up of a bubble in the asset markets. Yet, as the fragility of the banking system against market risks rise and doubts about the program's sustainability are intensified, capital inflows reveal a sudden stop, heavily squeezing liquidity and rocketing domestic rates of interest.

The Turkish exchange rate based stabilization program followed a familiar path with a surge in capital inflows, an upturn in economic activity, a significant appreciation of the currency, mounting trade deficits, worsening balance sheets and rising exchange-rate risks. However, Akyüz and Boratav (2001) argued that, compared to most other recent exchange rate based stabilization programs that also ended in crashes, in Turkey the boom in capital inflows lasted much shorter and the crisis broke out before any significant progress could be made in disinflation. On the eve of the outbreak of the November 2000 crisis, the inflation rate had come down only to 44.5 per cent on a yearly basis, from a level of 64 per cent a year earlier. While the decline in inflation continued throughout the next three months, the year-to-year consumer inflation was 33 per cent when the peg was finally abandoned in February 2000. By contrast, in Mexico, for instance, the boom in capital inflows lasted several years and inflation had been brought down to a single-digit level by the time the bust came in December 1994. This was also true for the Brazilian program launched in July 1994 to overcome hyperinflation; despite the contagion from East Asia the bust came in January 1999 when inflation had come down to some 6 percent. Moreover, the difference between some other recent crisis and Turkey case is that there was an IMF supported program in Turkey when the crisis was occurred.

Akyüz and Boratav, (2001) noted that pre-announced exit from the peg was considered a major strength of the Turkish program compared to earlier experiments with exchange rate based stabilization, particularly in Latin America. Such programs had often been criticized on the grounds

that they were launched without adequate attention to the potential problem of real currency appreciation and without a clear exit strategy as to when and how to alter the currency peg or the regime and realign the exchange rate. Real currency appreciation is not only unavoidable because of stickiness of domestic prices, but more fundamentally, is part of the rationale of successful disinflation, since greater exposure to international trade, resulting in lower real import prices and increased competition in export markets, helps to discipline domestic producers and acts as a break on income claims.

In the exchange rate based stabilization programs, appreciation of domestic currency and the increase in the demand for import was analyzed in a theoretical model by many economists. Calvo and Vegh (1999), in their model, defined the behavior of the consumers who search for an optimal equilibrium in an intergenerational budget constraint environment. The interesting feature of their model is the inclusion of expectations about sustainability of the program to the model which influences the real variables. Also, Bustelo (2000) compares financial crises in 1990's and determines some crisis indicators. Although, economically it may appear simple to restore international competitiveness by a one-off adjustment in the exchange rate, governments are often unwilling to abandon the peg and devalue after exerting considerable effort in attempting to convince people that the peg brought them more good than harm. They are also afraid of losing the confidence of markets and facing a sharp reversal of capital flows and a collapse of the currency. But delaying exit aggravates currency misalignments and external imbalances, eventually making it difficult to engineer an orderly realignment of the exchange rate.

The need to avoid these problems and move away from the soft peg is the main reason why an exit strategy was explicitly built into the Turkish stabilization program. However, it was also a gamble on the pace of disinflation: a failure to meet inflation targets could reinforce expectations of a sharp depreciation at the time of the pre-announced exit date, risking an earlier attack on the currency. This was, unfortunately, happened in Turkey; "Exchange rate based stabilization goes through three phases: The first one is very useful…Exchange rate stabilization helps bring under way a stabilization…In the second phase increasing real appreciation becomes apparent, it is increasingly recognized, but it is inconvenient to do something…Finally, in the third phase, it is too late to do something. Real appreciation has come to a point where a major devaluation is necessary. But the politics will not allow that. Some more time is spent in denial, and then – sometime – enough bad news pile up to cause the crash." (Dornbusch, 1997).

MAIN FEATURES OF THE DISINFLATION PROGRAM

Before explaining the general weaknesses of the 2000 disinflation program, let's talk about the program first. The main objectives of the program are as follows; (*2000, Disinflation Program, CBRT*):

- Decreasing the consumer inflation to 25% in the year 2000 and to 7% in the year 2001 by applying coordination of finance, money and exchange rate politics that are supported by structural reforms and that are consistent, strong and continuous.
- Decreasing real interest rate to reasonable levels
- Increasing the improvement potential of the economics
- Sustaining the fair distribution of economic resources

The three year disinflation program is essentially an exchange rate based stabilization program supplemented by fiscal adjustment and structural reform and is supported by the IMF with approximately US $4 billion over these three years. The support from the IMF is conditioned on achieving certain target values on some quantitative variables called the performance criteria. The performance criteria concerning the fiscal adjustment were aimed at establishing fiscal discipline and involve floor values on the primary surplus of the government sector and privatization proceeds as well as ceiling values on the contracting or guaranteeing of new external public debt and the stock of public short-term external debt. There were also indicative targets focusing on the overall balance of the consolidated government sector. The program also provided for a "quasi-currency board" whereby money printing against domestic assets was precluded. For the end of each quarter an upper ceiling was set to the stock of net domestic assets of the central bank at the level reached in December 1999, while 5% flexibility was allowed within the quarter. As the CB was committed not to engage in sterilization, macroeconomic equilibrium was to be attained mainly through changes in interest rates: if capital inflows fell short of the current-account deficit, liquidity would be withdrawn from the economy and interest rates would rise, thus restoring external equilibrium by attracting more capital, on the one hand, and by restraining domestic demand and imports, on the other.

Fiscal goals included an improvement in the primary balance of the consolidated public sector, to yield a surplus in 2000 to be attained primarily with additional taxation, cuts in current public primary spending, and funds generated by pension reform. This was seen to be sufficient to stabilize the public debt to GDP ratio over the medium term. However, disinflation was expected to result in a temporary rise in the burden of interest payments, as a proportion of GDP, on previously issued fix-rate securities, and revenues from privatization were to provide the resources needed to keep the public debt to GDP ratio at its 1999 level. All these were to be supported by income policy and upfront structural reforms. Salary increases for civil servants were to be set in line with the inflation target for the first six months, but would be fully adjusted subsequently for any excess inflation over the target, implying indexation to past inflation. Rationalization of agricultural policies and the pension system, improvement in fiscal management and tax administration, privatization of state-owned enterprises, including in particular Turk Telecom, and strengthening of the banking system and banking regulations were among the structural reforms agreed with the IMF.

The exchange rate basket would be disclosed daily for one year period. The exchange rate basket would be carried on as 1 US Dollar + 0.77 Euro. Turkish Lira would be depreciated 20% appropriately with the inflation. Following the first 18 months of the program, pre-announced exchange rate path, a progressively widening band around the path would be introduced, aimed at achieving a smooth transition to flexible exchange rate system.

MAIN WEAKNESSES OF THE DISINFLATION PROGRAM

The public banks that have loss in their balance sheets and that tried to finance these losses from the markets became a problem not long after the beginning of the problem. Similar to the operations for recapitalization of the public banks, if the financial structures of the public banks strengthened before setting the program based on the exchange rate, the conditions would be favorable for struggling inflation. The strategy that based on short-term foreign borrowing to finance public sector deficits led the banking system to be more vulnerable against the foreign exchange and interest risks. Increasingly unhedged risk taking behavior, coupled with a remarkable build-up of the short positions in foreign currency in the banking sector, raised serious doubts about the sustainability of the short term capital inflow based public debt management policies. Despite this fact, the disinflation program chose to rest the domestic liquidity creation mechanism on unsustainable short term capital flows.

In the context of the Turkish dis-inflation episode, debt financed public deficit and rapid acceleration of private expenditures escalated inflows of short term foreign capital, and severely increased the vulnerability of the shallow banking system. Thus, the implementation of the program itself increased the financial fragility of the domestic asset market. The combined effect of an easy deficit financing policy, together with its liquidity creating mechanism allowing for no-sterilization, had induced many commercial banks to shift their asset management policies toward bond financing activities. Yentürk, (2003) suggests a balanced devaluation before the program starts in order to allow for some appreciation of the currency during the program. The program has defined the wholesale price index as 20% and arranged the exchange rate with this definition. When taking the prices of the sectors that are not subjected to foreign trade into consideration, this value seems not to be realistic (Celasun, 2001). With aiming this kind of a value, a rapid decrease in internal finance rates was provided but the inflation could not be decreased with the same speed and the tendency for real exchange rate valuation had started.

The net domestic assets of the central bank had been limited and the determination of the interest rates is provided by the markets. In the terms when the capital flow and net external assets increased, the interest rates had decreased by the expanding of the monetary base but acted as a great risk because of the delimited resources when the net external assets receded. The structural arrangements that are highly scheduled and the indefiniteness of the priorities caused great

problems. In spite of the short term recovery of non-interest balance, it had a negative impact on the credibility of the program since it was unable to implement many important structural arrangements. Thus, the trustworthiness for the program had been damaged. Future indexation for salary and price determination was a very important element of the 2000 program. The precautions for the current account deficits (such as taxing the consumer credits and supplementary consumer tax) could not be implemented (Uygur 2001). Despite the fact that the responsibility of the program was undertaken by the central bank and the treasury, the government did not pay attention to the program. Pointed out that Turkey already had deposit insurance and asked why the Treasury extended this to a guarantee on all bank liabilities.

The unsterilized changes in net foreign assets of the central bank induced changes in the monetary base, and those were transmitted to the other real and nominal variables by changes in the interest rates, as exchange rates were nominally anchored. Under these conditions, the effects of the speculative capital movements on the interest rates would be magnified. The program overlooked this causal relation and ignored its destructive effects in a fragile banking system. Given these structural conditions, the program should have envisaged the destructive effects of a possible liquidity squeeze on the interest rates and on the fiscal balance. Under conditions of such interest risk with a pacified central bank, having all macro adjustment mechanisms tied to the interest rates constituted a clear theoretical oversight. The central bank was deprived of all its traditional tools of austerity and crisis management and was left defenseless against volatile capital flows.

Figure-1 shows the pressure in the markets based on an exchange market pressure index along with its mean and mean plus two standard deviations, which are indicated by horizontal lines. As advocated by Eichengreen et al. (1995), this pressure index is a weighted average of monthly rates of changes of exchange rate, official reserves and overnight rates, for the 1990-2001 periods. Monthly percentage change of each variable is weighted by the inverse of its variance. It is seen from this figure that on the beginning of the crisis there was so much pressure in the market which was a signal for speculative attack or sudden stop.

Exit from a Pegged Exchange Rate

The fragility of pegged rates and the difficulty of exiting from a peg without a crisis became painfully evident in the 1990s. There are few cases where countries succeeded in implementing exchange rate based stabilizations and then moving to a more flexible rate without experiencing a crisis. Moreover, these countries exited in favorable circumstances. It would appear that if global economic conditions are convenient, if there are no external shocks like those enumerated in the previous section, and if everything else goes just right can a smooth exit be achieved. More typical is the case where the authorities resist abandoning the peg out of fear that exiting will damage their policy credibility, provoke capital flight, and cause a recession. But the longer the peg is retained, the more vulnerability builds up in the financial system. The country exits not smoothly but as the

result of a crisis. Eichengreen and Masson, (1998) suggested that pegged regime should be last short and there must be an exit strategy from it. They also do not suggest waiting until the decrease of the credibility of program. According to them, the most peaceful time for exit is the time when the inflows are most strength and when there is no macroeconomic pressure. However, as described by Eichengreen and Masson (1998), most countries hesitate to leave a pegged regime while it is working well and only consider the exit option when they are facing speculative pressure, and then it often is too late.

Aşıcı and Wyplosz, (2003) searched for conditions of successful exit by comparing 55 countries which exit from a peg regime between 1975 and 2001. They define a peaceful exit as one which is characterized by a depreciation of the market determined exchange rate over the period comprised between six months before and six months after depegging that does not exceed 25 per cent. They find out that peaceful exiters display a less depressed economy as well as a lower inflation rate and therefore a lower interest rate as well, lower current account deficits, but not markedly better budget balances or public debts. Their public debts are longer term and external indebtedness is smaller. Interestingly, the loss in gross international reserves over the preceding 12 months is one-tenth lower, suggesting that timing might be an important strategic issue. In the Turkish disinflation program, the exit strategy was that in June 2001, 18 months after the adoption of the crawling peg, the country would begin gradually widening the symmetrical band around the central parity. The band was to have reached 7.5 per cent (measured from edge to edge) at the end of December 2001, 15 per cent at the end of June 2002, and 22.5 per cent at the end of December 2002.

Turkish banks had large unhedged foreign exposures which threatened to give create serious financial problems if the exchange rate was allowed to fluctuate too freely. The 18-month transition was suggested to buy time for strengthening the banking system and for accustoming the banks to an environment of greater exchange rate flexibility. But the downfall of this strategy was that the currency peg created moral hazard for both the banks and the government. The banks' net open positions nearly doubled during the first nine months of 2000 as they continued to make use of short term foreign funding to lock in longer term domestic nominal yields. More generally, stabilization induced capital inflows arbitraged high domestic and lower world interest rates. These inflows, masked the weaknesses of the latter intermediated by the banking system. All this weakened the incentive for the authorities to enforce the new bank regulations. The remedy for these circumstances was of course not to wait until these circumstances occur and abandon the pegged exchange rate system when the program was sustainable.

CONTROLLING CAPITAL FLOWS

In a world with high capital mobility, even small adjustments in international portfolio allocations to the emerging economies result in very large swings in capital flows. For a number of reasons,

especially for the decrease of the credibility of the countries, these funds slow down. If there is a pegged exchange rate, this change in conditions requires significant corrections in macroeconomic policies. However, if the adjustment is delayed or is insufficient, it increases the level of uncertainty and the degree of country risk. As a result, massive volumes of capital leave the country, international reserves drop to dangerously low levels and real exchange rates become overvalued. Eventually the pegged nominal exchange rate has to be abandoned, and the country is forced to float its currency. The countries that had relatively high capital inflows live currency crisis continuously after the second part of the 1990's. We can explain this by the impossibility of the holy trinity: it is not possible to simultaneously have free capital mobility, a pegged exchange rate and an independent monetary policy (Summers, 2000). Some authors have argued, however, that this is a false policy dilemma, since there is no reason why emerging economies have to allow free capital mobility. Indeed, the fact that currency crises are almost the result of capital flow reversals has led some authors to argue that capital controls can reduce the risk of a currency crisis. Dornbusch, compares the two alternatives of IMF programs and capital controls and says that; "There are two areas of controversy. The first involves capital controls and the second surrounds the appropriateness of IMF programs. The appropriateness of IMF programs is quite obviously questioned because it seems, at least on the surface, to make a bad situation worse. Raising interest rates at a time where balance sheets are already under water makes a bad debt situation worse. Raising interest rates and tightening fiscal policy at a time where the economy is already in steep decline seems to be outright counterproductive" (Dornbusch 2001). Considers the Turkish case and blames the government to sign an agreement with IMF again although there were several disasters before.

If we look at this issue with considering the Turkish disinflation program, the program limited the monetary expansion to changes in the net foreign asset (NFA) position of the Central Bank, and fixed the Bank's stock of net domestic assets (NDA) at its December 1999 level. It was further announced that the central bank would be allowed to change its net domestic asset position within a band of 5 percent of the monetary base, to be revised at three month intervals. Thus, according to this rule, the liquidity generation mechanism available to the central bank practically entailed a regime of a semi currency board in its monetary operations. Within this mechanism the monetary policy is restricted to the direction of the foreign exchange flows, and as such, the most important element to be able to sustain the liquidity needs of the economy would depend upon the properly continuation of the foreign credit flow into the system. Whereas, as it can be seen from the figure 1 the cycles and instabilities in Turkey's economy was mainly due to the fluctuations in capital inflows.

Capital controls may be an important candidate for neutralize the design flaw of the program (or decrease the degree of harmful results to some extent by impeding sudden reversals) about its liquidity generating mechanism which causes dependency to capital flows. In the practice of Chile,

it can be seen how it increase the ability of its central bank to undertake independent monetary policy, change the composition of its capital inflow to the longer terms and reduce the vulnerability of its macroeconomics. Chile's system of capital control, which is called unremunerated reserve requirements, is equivalent to a tax on capital inflows. The rate of the tax depends both on the period of time during which the funds stay in the country, as well as on the opportunity cost of these funds. As shown by De Gregorio et al. (2000), the tax equivalent for funds that stay in Chile for k months, is given by the following expression:

$$t(k) = [\, r * \lambda / (\, 1 - \lambda \,) \,] (\theta / k) \qquad (1)$$

where r is an international interest rate that captures the opportunity cost of the reserve requirement, λ is the proportion of the funds that has to be deposited at the Central Bank, and θ is the period of time (measured in months) that the deposit has to be kept in the central bank. We can see that, the rate of the tax is inversely related to the length of the stay of the funds in the country. There may be some doubts about the volume of capital inflows to the country by thinking in a way that controlling capital flows effect the investor's decisions about choosing the country for investing since Turkey needed capital flows in the past decades as Eichengreen says; "Export growth was insufficient to finance buoyant import demands rendering them dependent on capital inflows" (Eichengreen 2001). However, on the composition of capital inflows into Chile between 1988 and 1998; Edwards (2000) pointed out that during this period shorter term flows that less than a year maturity, declined in a considerable amount relative to longer term capital. These data also show that, with the exception of a brief decline in 1993, the total volume of capital inflows into the country continued to increase until 1998. Thus, capital controls does not necessarily causes capital inflows to decline. Furthermore, capital inflows to Turkey was much more higher than necessary to finance high import demand before and during the implementation of the program., which means that there will be no difficulty in financing imports even though the capital inflows decline. Hence, the remedy for the design flaw of the program about monetary base and liquidity can be sustainable with implementing capital controls to the flows like Chile.

CONCLUSION

This paper examines the 2000 disinflation program that is implemented in Turkey with IMF support and resulted with a terrible liquidity crunch in February 2001 when nearly one year passed since its start. It summarizes the incidents during the program which lead to the collapse of the program. This is seen from the fundamental characteristics of the program is that it would not so difficult to predict that there would be very small probability to success. Results of the same type of programs in all over the world in 1990's support this view. Misleading exit strategy and no sterilization rule for capital inflows are the main flaws in the design of the program. Conclusions of the paper about the vital weaknesses of disinflation program in Turkey and their remedy are about

timing of the exit from the pegged exchange rate system by abandoning the exchange rate anchored disinflation program and controlling the capital flows. Compared to previously implemented exchange rate based stabilization programs, Turkey's disinflation program had a preannounced exit strategy. This strategy was aimed at establishing credibility for the announced reduction in the devaluation rate and to avoid bad effects associated with programs that incorporate a reduction in the devaluation rate that is not credible. Following the first 18 months of the program with a preannounced exchange rate path, a progressively widening band around the path would be introduced, aimed at achieving a smooth transition to flexible exchange rate system. However, the crisis and obligatory exit showed that the exit strategy was false and the time should not be preannounced. Instead, it should be said that the exchange rate system was temporary until the time when it was unnecessary, which means that capital inflow is abundant, there is no much currency overvaluation and the credibility of the program is high.

The idea that pegged exchange rate must be temporary in the first stages of the program and after the credibility and some success was gained, it should have been turned to the flexible, can be seen from the words of Bruno, who experienced the same story as a policy maker in Israel, where in order to avoid the overvaluation syndrome a pegged exchange rate had been replaced by a sliding, forward-looking crawling band in 1989, "the choice of the exchange rate as the nominal anchor only relates to the initial phase of stabilization". However, the surprising event was the IMF's preannounced design about the exit strategy in Turkey's disinflation program in 2000, although it defends the Bruno's position in 1998 by the long study about the exit strategies. In that study, there were three major conclusions about the subject (Eichengreen and Masson, 1998) and the most emerging countries would benefit from greater exchange rate flexibility. The probability of a successful exit strategy is higher if the pegged rate is abandoned at a time of abundant capital inflows. And, countries should strengthened their fiscal and monetary policies before exiting the pegged exchange rate. Program involved floor values on the net international reserves of the central bank and ceiling values on the net domestic assets. Within each quarter, net domestic assets were allowed to fluctuate within a 5% band of the previous quarter's value of the stock of total base money but end quarter values were predetermined. Putting all these together and making a note that capital flows will not be sterilized lead to a completely endogenously determined money supply. This paper argues that this strategy makes the economy and the program more vulnerable since the growth is associated with capital inflows, which is very fluctuating, in Turkey and program itself causes the need for continuous capital inflow since its exchange rate anchor causes the increase in import demand. Flow of the huge amount of the capital out of the country and the failure of the program supports the view about the vulnerability of the program because of its liquidity generating mechanism. The paper suggests a capital control as a remedy for sudden capital flows like Chile does in 1990's. Chile's system of capital control was equivalent to a tax on capital inflows. The rate of the tax depends both on the period of time during which the funds stay in the country, as well as on the opportunity cost of these funds. By the help of this system, Chile affected
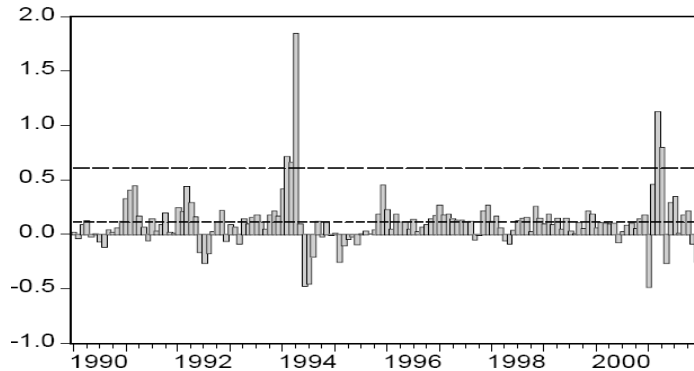
the composition of capital flows in long terms' favor, increased its central bank's ability to undertake independent monetary policy and helped itself to reduce the degree of macroeconomic instability and vulnerability to externally originated shocks. That is, in the presence of controls, the local monetary authorities will have the ability to affect the monetary base. This greater control over monetary policy is the reason for the support of the imposition of this type of control in the paper while considering the disinflation program in Turkey.

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Figure-1. Financial Pressure Index

Source: Ozatay and Sak 2