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CEPA Working Paper 2004-01

January 13, 2004

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## **Turkish Currency Crisis of 2000-1, Revisited**

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### Abstract:

Turkey's exchange rate based stabilization program had collapsed within just eleven months of its implementation. Unsustainable public debt dynamics and fragility of the banking system have been the main reasons blamed for the demise of the program. However, the banking sector fragility became an issue only after the economy was hit by a liquidity crunch in November 2000. Because the central bank functioned as a quasi currency board, the liquidity crunch was caused by a reversal of the capital inflow. The onset of the stabilization program brought down interest rates as expected and thus created ample opportunities for speculative investors to make safe one-sided bets. Thus, in our view the real cause of the capital reversal was profit taking on the part of foreign speculative investors holding government securities who conjectured that falling interest rates had reached their limit at the time.

We would like to thank Lance Taylor, Kenneth Jameson and Cem Akyurek for helpful comments on an earlier version of the paper. We are alone responsible for any errors that might remain.

At the end of 1999, Turkey embarked on an exchange rate based disinflation program backed by a three-year stand-by agreement 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. Set off to 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. Unable to recover fully from the turmoil, the program was terminated within three months in February 2001 as the internal debt market collapsed. The exchange rate was left to float and a severe recession ensued. Eventually, fresh funds secured by a new agreement with the IMF, amounting to more than USD 15 billion, checked the free fall of the Turkish Lira.

To this day, no consensus exists on what caused the crisis. It is generally agreed that none of the better-known crisis models account for the Turkish currency troubles of 2000-1 (Ozatay and Sak 2003). In different arguments that have so far been made, a couple of themes have however emerged. One emphasizes the banking sector fragility, dovetailing the recent mainstream emphasis on structural weaknesses with the attendant moral hazard problems they are thought to create. Yet another calls attention to the flawed nature of the IMF-backed program itself, either because it failed to address properly the domestic debt problem (Ekinici 2002) or because it saddled a fragile financial system with real currency appreciation and soaring currency account deficits (Akyuz & Boratav 2002; Yeldan 2002).<sup>1</sup> Though each captures an aspect of the Turkish crisis, in our view, neither goes far enough in highlighting the systemic nature currency crises

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<sup>1</sup> The view that the crisis was caused by policy slippage, voiced by some IMF officials at the time and some columnists in the business press, has found little support among economists who have studied the Turkish crisis in depth. See, in addition to those already cited, Eichengreen (2001), Alper 2001, Ertugrul & Selcuk 2001, Yeldan 2002.

seem to have acquired in emerging markets in the 1990s. That we believe requires an emphasis on portfolio dynamics that are driven by speculative asset price expectations (Erturk 2003). In an environment characterized by unstable public debt dynamics, a salient outcome of more than a decade long Turkish experience in financial liberalization, capital inflows financing speculative asset positions are liable to endogenous reversals.

In many of the earlier crises, especially in the 1980s, reversals of capital flows appear to have been triggered by endogenous shifts in the devaluation risk driven by soaring current account deficits (Rodriguez 1982, Taylor 1998).<sup>2</sup> Capital inflows were normally stimulated by the onset of a credible exchange-rate-based stabilization program that had resulted in a positive interest rate spread in favor of the domestic country. With a crawling peg, in what followed, the sluggish adjustment of prices often caused real currency appreciation and a widening current account deficit that had led to rising devaluation risk, which in turn triggered sooner or later a capital reversal. Contrary to this stylized account, in our view, what happened in the Turkish crisis was instead capital account driven. We argue that the important counterpart to capital inflows was essentially the speculative positions in domestic debt instruments held by “foreigners” mainly through domestic banks and that the capital flow reversed itself once the expectations of domestic asset price increases petered out.

The paper is presented in five sections. Sections 1 and 2 provide background information, respectively, on the debt dynamics before 1999 and on the disinflation program leading up to its demise. After briefly discussing the main explanations of the crisis in Section 3, an alternative

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<sup>2</sup> For a detailed discussion of different currency crisis models, see Erturk (forthcoming).

account based on portfolio dynamics driven by speculative asset price expectations is given in Section 4. Section 5 concludes.

## 1. Debt Dynamics

Turkey fully liberalized its capital account in the second half of 1989 and made a commitment to stop monetizing its budget deficits. The shift towards domestic borrowing failed to reduce inflation by any significant amount and future tax payers were burdened with the additional cost of interest payments on a rapidly rising public debt. At the time of liberalization, the domestic public debt was negligible at 5.6% of GNP. It increased to 14.4% of GNP in 1994 and then soared to 41.7% by 1999,<sup>3</sup> mainly on account of excessively high real interest rates that hovered above 30% much of the period during 1995-9.

In the meantime, the increase in the external debt, though significant, was not as explosive. According to the Treasury, total external debt stood at 79.6 billion dollars (43.3% of GNP) in 1997 and climbed to 101.8 billions dollars (55% of GNP) by the end of 1999.<sup>4</sup> The private sector was responsible for all of the increase over this period as the public sector portion of the foreign debt remained constant at around 52 billion dollars during that period. Commercial banks held about half (USD 13 billion) of the total private sector short-term debt, which stood at USD 23.4 billion in 1999. The cumulative current account deficits for this period, 1996-9, was only 4.4 billion and thus capital inflows were financing positions in domestic debt instruments through the private sector, mainly, private banks.

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<sup>3</sup> The data in this section is from the Treasury and the Central Bank of Turkey. See in particular the program statement of April 2001, "Strengthening the Turkish Economy," available on [www.treasury.gov.tr](http://www.treasury.gov.tr). Akyuz and Boratav (2002), especially Section 2, provides good background information on the state of the Turkish economy prior to the program of 2000.

<sup>4</sup> The external debt series was redefined from 1996 onwards, making the data less than fully compatible with the previous period. But end-1990 total external debt was 49 billion dollars, 19.3% of which was short-term.

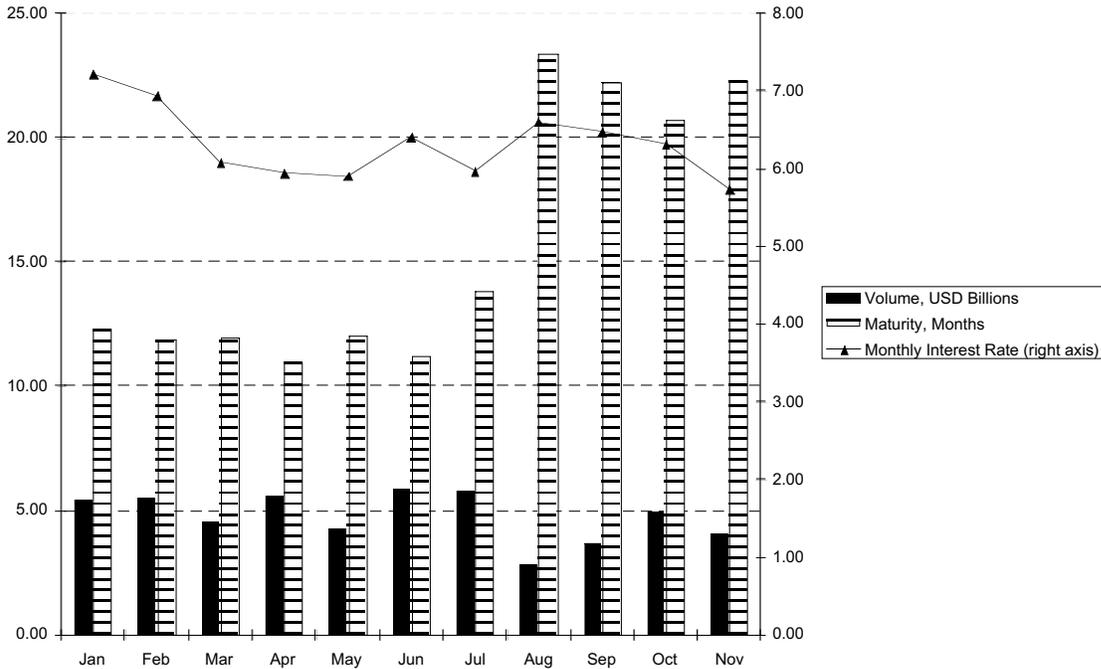
Throughout the nineties, public sector debt instruments have constituted the bulk of outstanding financial assets in Turkey, while the volume of traded private sector securities remained miniscule in comparison and was as small a magnitude as around 1 % of GDP (Yeldan 2001). Private banks have been the main buyers of public debt instruments and developed a fragile financial position in the process.<sup>5</sup> In 1999, the Treasury had to rollover an average amount of five billion dollars each month at an average maturity of twelve months in the first half of the year (see Figure 1).<sup>6</sup> The average monthly interest rate was around 6%, which compounds to over 100% annually, compared to a rate of depreciation (of a basket consisting of 1 USD and 1.5 DM) of around 60% over the year, and CPI inflation of 64%. Similar to what happened in previous years in the 1990s, private banks purchased about ninety percent of the government bonds issued in that year (Yeldan 2001, p. 151), and likewise much of the foreign portfolio investment has been in government debt rather than private sector securities.

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<sup>5</sup> See Ozatay and Sak (2003) and Alper et al (2001) for a detailed analysis of the fragility of the banking sector in Turkey on the road to the crisis.

<sup>6</sup> The increase in average maturity towards the end of the year is attributable to announcement effects of the IMF-sponsored stabilization policy that became operational in the very beginning of 2000.

Figure 1 Treasury Tenders in 1999



Source: The Treasury of Turkey

Unsurprisingly, the explosive increase in domestic public debt was one of the main problems the failed IMF-backed stabilization program meant to address.<sup>7</sup> The Russian crisis only increased the urgency of the debt problem as it had led to an outflow of seven billion dollars in the last quarter of 1998 from Turkey. At the time, the central bank avoided a liquidity squeeze as it had partially sterilized the outflow, but the interest rates had soared.<sup>8</sup> To stabilize the debt to GDP ratio, it was clear that interest rates had to decrease, and to lower interest rates inflation had to come down. At

<sup>7</sup> The Turkish Letter of Intent of December 9, 1999, read, “Moreover, these high real interest rates, together with a weak fiscal primary position, have pushed public finances onto an unsustainable path. Public sector debt...is projected to increase from 44 percent of GNP at end-1998 to 58 percent of GNP at end-1999. *This leaves Turkey vulnerable to swings in international financial markets’ confidence.*” (Emphasis added).

<sup>8</sup> Eventually capital inflows resumed and the Bank started accumulating reserves. The high rates in the first months of 1999 in Figure 1 are the legacy of this episode.

the time, many hailed the IMF-sponsored disinflation program as the last chance Turkey had to put its financial house in order.

## 2. Stabilization Program of 2000

Following the conclusion of a three-year stand-by agreement with the IMF in December 1999, Turkey began implementing a program in January 2000 that aimed at reducing consumer price inflation to 25% in 2000, and to single digits by the end of 2002. The other main objective was to first stabilize and then reduce the debt to GDP ratio.<sup>9</sup>

In addition to its tight fiscal stance<sup>10</sup> and promise of structural reform, Turkey's stabilization program was characterized by a firm exchange rate commitment and a quasi-currency board arrangement that set limits on the net domestic assets of the Central Bank.<sup>11</sup> The monetary policy setting meant that the Bank was not allowed to sterilize capital inflows or outflows and could no longer control interest rates. This had effectively reversed the undeclared commitment for the Central Bank to act as an intermediary to facilitate the realization of capital gains on government issued debt instruments, a feature of the program that proved decisive - as we argue below.

Main macroeconomic developments after the implementation program were in accord with the general pattern associated with the other exchange rate based disinflation programs (Calvo and Vegh 1999). The real activity recovered sharply in terms of GDP growth from -4.7% in 1999 to

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<sup>9</sup> The total debt to GDP ratio, which stood at 61% at the start of the program, was expected to fall to 55% by its completion at the end of 2002.

<sup>10</sup> The fiscal adjustment envisaged a primary surplus of 2.2% in 2000 and 5.5% in the remaining two years.

<sup>11</sup> As a safeguard against the harmful effects of currency appreciation, the exchange rate commitment in the program was accompanied with a pre-announced exit strategy, whereby the crawling peg would be abandoned after eighteen months in July 2001. It was stipulated that a widening band would follow thereafter, eventually reaching 22.5% after six months. For the details of the other aspects of the program see Akyuz and Boratav (2002), Ekinici (2002), Ozatay and Sak (2003) as well as the Letter of Intent (December 9, 1999), which is available on the website of the IMF.

7.4% and the domestic currency appreciated in real terms, as the convergence of inflation was slow. The current account balance ballooned to 5% of GNP, from a low average of around 1% of GNP prior to 2000. The speed of recovery in 2000 was in part related to the depth of the 1999 recession, and one-off factors contributed to the deteriorating current account balance, such as the oil price increases in 2000 and the loss of export markets after the Russian crisis (Ozatay and Sak 2003). Overall, the public sector met the targets stipulated by its tight fiscal stance, effectively decelerating the rate of increase of public sector indebtedness thanks also to the lower interest rates achieved during the year (Yeldan 2002). However, the pace of structural reform was slower than promised.

The program was seemingly on track, with the last Treasury auctions for the year in the first half of November completed at interest rates comparable to those in the previous months of the year (see Figure 3 below.) But on the 20<sup>th</sup> of November the outlook suddenly changed and in the following weeks, the annualized overnight interest rates reached double and on occasion three-digit figures. The central bank lost around 5 billion dollars within two weeks, and at the brink of collapse the program was saved, albeit temporarily, by an additional 7.5 billion dollars from the IMF's Supplemental Reserve Facility.

The turmoil in November devastated the market for government debt instruments (Ekinci 2002). The primary dealership system was abandoned, and thus there were no domestic banks to absorb these instruments when no new foreign buyers were forthcoming.<sup>12</sup> The extremely favorable interest parity for foreign investors was not attracting capital and the banking system was now

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<sup>12</sup> In fact the most active primary dealer bank was taken over by the deposit insurance fund in December 2000 as a result of heavy losses it incurred over its government securities portfolio.

holding illiquid assets in the form of government debt instruments. The central bank was not rendering the banking sector liquid, albeit temporarily, due to the monetary terms of the stabilization program. The banks that relied on short-term borrowing to finance this illiquid portfolio were experiencing increasing difficulties as their balance sheets continued to deteriorate. Under these conditions, the spark came from a political row between the President and the Prime Minister on the 19<sup>th</sup> of February, which prompted banks to place buy orders of seven billion dollars with the central bank. As a result public banks became unable to borrow in the overnight market and overnight interest rates on occasion approached 7000% on an annualized basis. The payments system came to a standstill and there was no choice but to abandon the “firm” commitment on the exchange rate. The program was abandoned and the TL was left to float on February 22<sup>nd</sup>, 2001.

### 3. What Caused the Crisis?

With the benefit of hindsight, it is now clear that the program in effect collapsed in November 2000 as a result of the “liquidity crisis.” Within the context of a quasi-currency board arrangement, a liquidity crisis, in turn, can only mean a reversal of capital inflows. The cumulative net portfolio investment in Turkey, from the third quarter of 1999 - when it became evident that a new IMF sponsored program was in the offing – till the crisis, is in the neighborhood of USD 8 billion, while the net outflow in November is about USD 5 billion (Figure 2). However, the graph also shows that net portfolio investment began falling in the summer months and had already turned negative in October. A broader measure of the short-term capital inflow (including short-term loans to banks and other private sectors, changes in currency

and deposits and net errors and omissions<sup>13</sup> in addition to portfolio investment) also shows a steady slowdown beginning in the summer months that turns negative in October (Figure 3). This means that from July onwards there was a marked slowdown/reversal in the capital inflow, prior to the November crisis. Thus, the “sudden” reversal in November came on the heels of a gradual worsening and was itself as much a result as it was the cause of the worsening liquidity position of private banks, as we shall see.

Any explanation of what had happened must account for this slowdown in the inflow in the second half of the year as well as why the outflow in November was so destructive given the fact its actual magnitude was relatively small in relation to both the size of economy and the foreign exchange reserves the central bank held at the time.

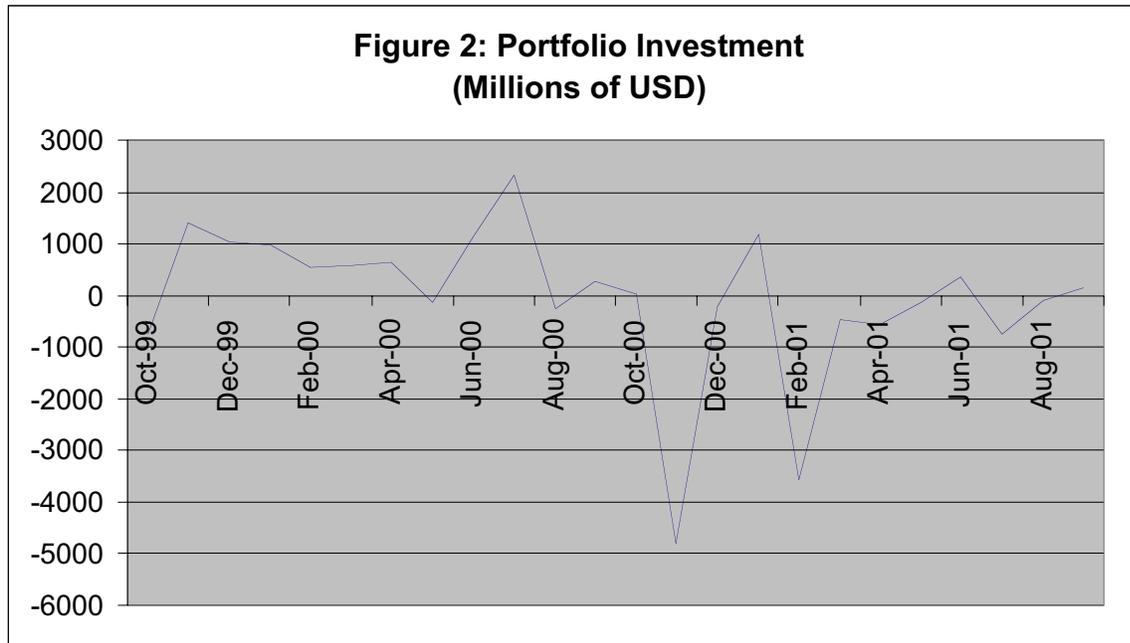
The fact that the program had survived for only eleven months alone attests to the implausibility of a current account based explanation of the capital reversal.<sup>14</sup> Notably, prior to 2000, Turkey was not running high current account deficits and had no significant increase in short-term indebtedness. Thus, there was no history of increasing exposure to devaluation risk associated with high current account deficits that could explain the capital reversal in November and the slowdown that began in the summer months. The sudden surge in the current account deficit in the first part of 2000, which was in part due to one-off factors, had begun to decrease during summer thanks in part to revenues from tourism, and even the trade balance in goods only had

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<sup>13</sup> In accordance with Boratav (2001), this assumes that net errors and omissions stem essentially from unrecorded capital account transactions by residents.

<sup>14</sup> That is why currency appreciation and the rising current account deficit are often brought up in connection with debt dynamics and problems faced by the banking sector. For instance, Akyuz and Boratav (2002) argue that the program design was flawed because it failed to anticipate the risks entailed in burdening a fragile financial system with a type of exchange rate stabilization program that is known to cause currency appreciation and deterioration of the current account, and thus making the economy dependent on arbitrage capital while at the same time causing the devaluation risk to rise.

seemed to be improving in the second half of the year. In any event, the cumulative shortfall in the current account balance for the whole year was below USD 10 billion, and thus was perfectly serviceable given that the central bank had 24 billion dollars of reserves and an additional 7.5 billions became available through the Supplemental Reserve Facility.

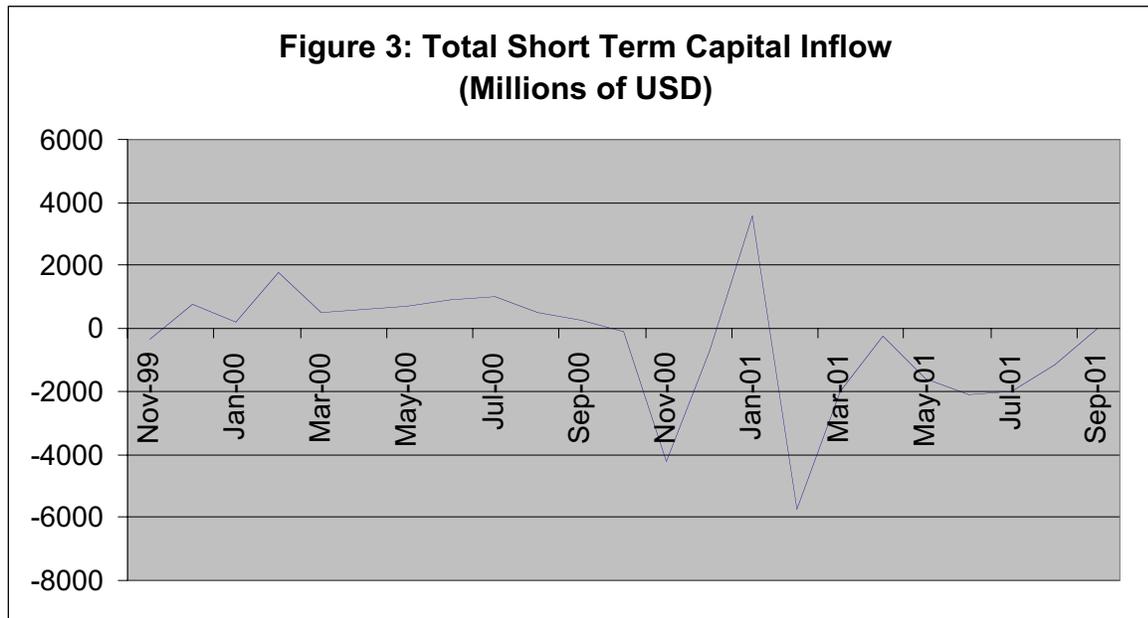


Source: Central Bank of Turkey

The emphasis on the fragility of the banking sector, though well placed, is not very convincing as an explanation of the crisis either. Ozatay and Sak (2003) carefully document the nature of financial fragility, and argue that delays in banking sector reform and the Banking Supervision Authority's probe into banks under administration triggered the capital reversal.<sup>15</sup> However, the

<sup>15</sup> Five banks were taken over by the Deposit Insurance Fund administrated by the Supervision Authority in late 1999 as a preparation for the program. Later in the third quarter of 2000 two more banks were taken over and the Authority started criminal investigations against the owners of these banks for fraud.

problem with this line of explanation is that it tends to confuse cause and effect. As the authors themselves acknowledge, the unsustainable domestic debt dynamics and its mode of financing



Source: Central Bank of Turkey

were at the root of the fragility of the system. Thus, the health of the banking system could not be restored without at the same time solving the debt problem, which the program sought to do. If anything, this argument justifies the contention in Akyuz and Boratav (2002) that the program was flawed. As it was widely acknowledged at the time, achieving debt sustainability and banking sector rehabilitation had to go hand in hand. Because financial fragility existed and was in fact sustained by capital inflows throughout the second half of the nineties, it begs the question why it would trigger a capital reversal at a time when debt dynamics was being brought under control in a program that had tried to address the problem. Thus, banking sector fragility, while it

played a decisive role once the capital inflow reversed, cannot be an explanation of the reversal itself.<sup>16</sup>

In our view, a more satisfactory explanation must look at the effect the program itself had on speculative expectations underlying the debt dynamics. The success of Program of 2000 in solving the debt problem depended on capital inflows to become less speculative in character over time and to finance positions in government debt instruments for the long haul. This was the soft belly of the program that proved vulnerable to speculative asset price expectations, which the program set off itself – as we argue next.

#### 4. An Alternative Explanation Based on Asset Price Dynamics

The well-known (open) interest rate parity condition states that rates of return on domestic and foreign assets in terms of domestic currency must be equal up to a risk premium.

$$r_t = r^* + \Delta \ln e_{t+1} + \delta \quad (1)$$

where  $r$  = domestic interest rate,  $r^*$  = foreign interest rate,  $e$  = nominal exchange rate, ( $\Delta \ln e_{t+1}$  being the expected rate of depreciation of the domestic currency),  $\delta$  = risk premium.

The implicit assumption behind this condition is that domestic and foreign assets of equal maturity are held to maturity. However, for speculative investors, who hold these instruments for

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<sup>16</sup> However, we recognize that criminal investigations into several small banks taken over by the Banking Supervision Authority in the third quarter of the year might have prompted some foreign investors to withdraw funds because it contributed to a general feeling of unease, thereby aggravating the liquidity bottleneck.

the (expected) change in the price of these instruments the relevant rate of return is the (expected) asset price change or  $\Delta \ln P_{t+1}$ ,  $P$  being the price of the debt instruments.<sup>17</sup> The equation that governs their behavior is thus given by:

$$\Delta \ln P_{t+1} = r^* + \Delta \ln e_{t+1} + \delta \quad (1')$$

In the case of a simple discount instrument with a face value of  $X$ , the price of the instrument is

$P_t = X / (1 + r_t)$  at time  $t$ , yielding,  $\ln P_t = \ln X - \ln(1 + r_t) = \ln X - r_t$ , with the reasonable approximation  $\ln(1 + r_t) = r_t$ .

Likewise,  $P_{t+1} = X / (1 + Er_{t+1}) = \ln X - Er_{t+1}$ , where  $E$  is the expectations operator. It follows that:

$$\Delta \ln P_{t+1} = r_t - Er_{t+1} = r^* + \Delta \ln e_{t+1} + \delta \quad (2)$$

or

$$r_t = Er_{t+1} + d_t, \quad (2')$$

where,

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<sup>17</sup> In fact, as Keynes argued, there is a speculative element in any portfolio, as on the whole any investor has to take possible capital gain or loss into account, in the event of having to sell, even if the original intention was to hold to maturity.

$$d_t = r^* + \Delta \ln e_{t+1} + \delta$$

This means that, in a Keynesian spirit, asset prices (interest rate) follow a forward-looking unit root process (with respect to the expected rate) with drift ( $d_t$ ). With given expectations about the drift, the current interest rate is governed by its expected future value and thus what speculative investors expect will happen determines the current interest rate. In other words, the pace and direction of capital inflows are determined by the behavior of those who buy these instruments for the expected capital gains. Capital inflows when the interest rates is expected fall and the current interest rate falls. If, however, speculative investors think that the decrease in the interest rate has reached its limit, they may start selling their positions in order to realize any accumulated capital gains. In the process, they cause the current rate to increase, obliterating whatever capital gains that had existed. Thus, timing of the exit is crucial in realizing speculative gains.

Future interest rates are expected to fall to the extent that an exchange-rate-based program is found credible, as the latter is expected to reduce the policy-related drift (in Equation 2'), consisting of the rate of depreciation and the risk premium, on two accounts. First, the program, by design, sets a predetermined path for the rate of depreciation at a lower rate than that prevailing before the program.<sup>18</sup> Second, the IMF sponsorship may reduce the risk premium by improving market confidence and psychology.<sup>19</sup> In any event, it is well established that (nominal)

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<sup>18</sup> The program target for the basket rate of depreciation was 2.1%, 1.7%, 1.3% and 1%, per month in the respective four quarters of 2000.

<sup>19</sup> This is at least what the IMF believes happens. "The Fund's involvement instills confidence in both domestic residents and foreign investors that the policy framework will be implemented." in *Presentation to the International Financial Institution Advisory Commission* by Stanley Fisher [www.imf.org/external/np/speeches/2000/020200.htm](http://www.imf.org/external/np/speeches/2000/020200.htm).

interest rates do come down in exchange-rate-based programs, and they indeed did in Turkey, and at a very rapid rate as shown in Figure 4.

The margin between the rate of devaluation and interest rate, which was fairly wide in 1999, narrowed significantly with the onset of the program, indicating an initial fall in the risk premium. Interest rates in primary and secondary markets, the latter being the market for realization of capital gains, moved closely together and both fell sharply, as did the devaluation rate. In the beginning phase of the program, rates were falling and were expected to fall further, indicating what Keynes once called “bull market with a consensus of opinion.”

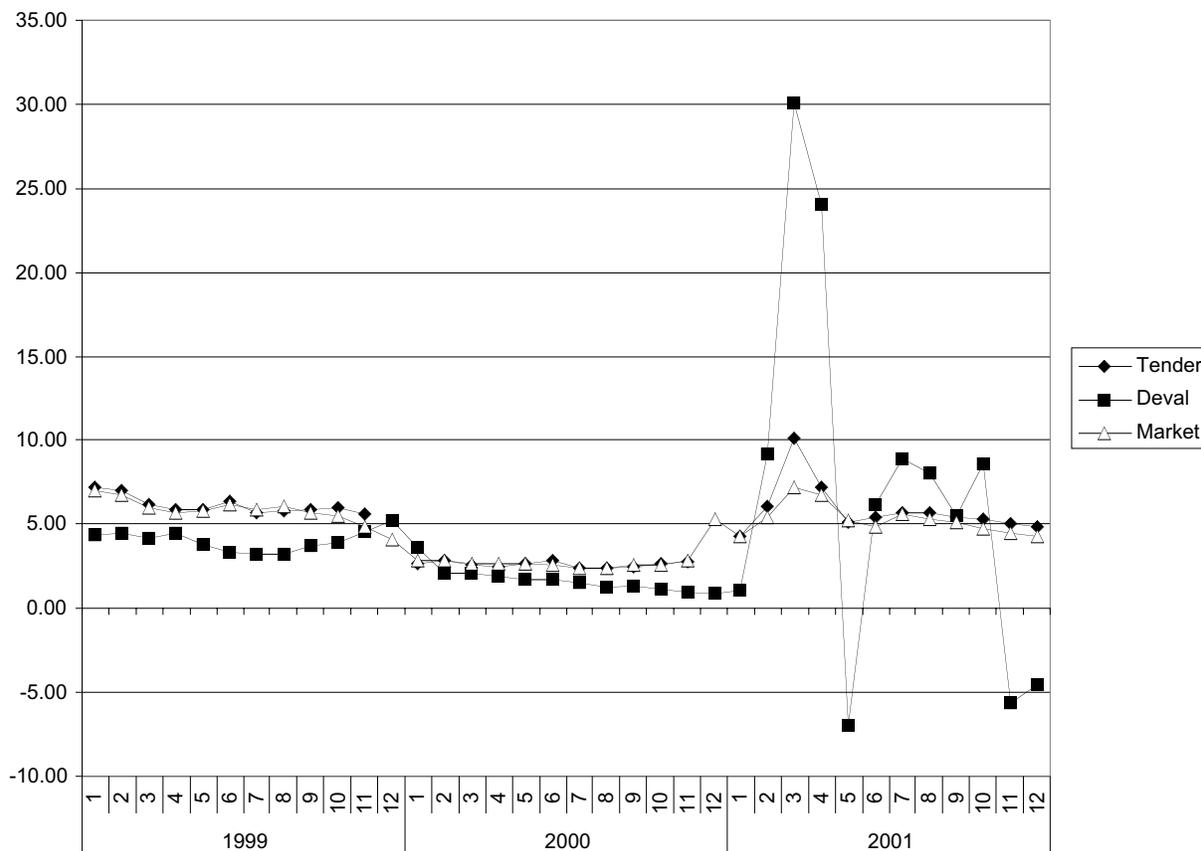
Figure 4 shows that interest rates effectively bottomed out by the third quarter. This is in accord with the slowdown in capital inflows that was noted above. To the extent that expectations of further asset price increases petered out at this point, because it was believed the interest rates could fall no further, this was the right moment for speculative holders to realize capital gains. Irrespective of any other “triggering” cause, the capital flow would have, and indeed has, began to reverse at this stage. With the benefit of hindsight, it can be argued that the positive aspects of the stabilization program were discounted excessively at the outset and the initial fall in the interest rate was too sharp. Thus, once the dust settled the initial euphoria seemed unwarranted, as doubts have increased about the pace of structural reform, sustainability of debt dynamics and size of current account deficit. This means that these conventional factors in the context of the political developments of the day might account for why the expectations of further asset price increases have petered out at the time they did.<sup>20</sup> But, in themselves, they explain neither the

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<sup>20</sup> This point was raised by Cem Akyurek in private correspondence. In a recent paper, he emphasizes the failure of the stabilization program to achieve a sustainable fiscal regime (Akyurek 2003).

sharp reversal in capital inflow in November nor the reason why a relatively small outflow had such a disruptive effect.

**Figure 4 Interest Rates and the Rate of Devaluation**



Source: The Central Bank and The Treasury of Turkey<sup>21</sup>

Once the realization of capital gains by the speculative holders of government paper had begun to gain momentum after the summer months, the primary dealer banks were pushed to the point of

<sup>21</sup> The series “Tender” refers to the (monthly) rates on primary issues of debt instruments by the Treasury through regular auctions. There is usually no Treasury auction in December. The series “Market” is the interest rate on Treasury issues in the secondary market. The series “Deval” is the rate of devaluation of a basket of 1USD and 1.5DM(0.77 Euro).

holding a portfolio that they were neither able nor willing to carry, having to finance it through short-term borrowing. The central bank could no longer limit capital losses and lower the risk associated with speculative holdings because of the quasi-currency board arrangement of the disinflation program of 2000. By contrast, throughout the second half of the nineties, it had set a ceiling to interest rates through open market operations and thereby intermediated the realization of capital gains.<sup>22</sup> It had run special credit facilities with the primary dealers, allowing them to bridge temporary gaps in liquidity resulting from their operations in government paper. However, the program of 2000 denied this facility to primary banks forcing them to rely on short-term market finance as they had to takeover an ever-larger portfolio of government debt that was being unloaded by the speculative holders.

With no one willing to hold these securities directly and indirectly through lending to current holders, - and this is the exact sense in which there was a liquidity problem - the most active primary dealer was eventually "...forced to sell a large chunk of its T-bill holdings, pushing yields above the stop-loss levels of foreign investors and other local banks, thereby triggering a massive closing of positions and prompting primary dealers to suspend trading in government paper. Foreign investors' concerns about domestic banks' net foreign exchange exposure, and the quality of their forward cover exacerbated the rush for the exit." (IMF, 2001, p.8) The survival of the program at this stage depended on a fresh round of international investors who were willing and able to hold these debt instruments to maturity, but none was forthcoming. Thereafter, it was only a matter of time that the program would be aborted.

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<sup>22</sup> This was in fact the policy stance that was instrumental in rolling over debt through capital inflows in Turkey during this period.

In the absence of the central bank acting as an intermediary, the program relied on market forces to maintain the liquidity of debt instruments. Two self-correcting mechanisms were foreseen. First, because the primary dealer banks in government securities had a stake in maintaining the value of these instruments, it was thought that they would be inclined to take over the portfolio speculative holders would want to unload. They would thus act as an intermediary for realization of capital gains and be willing to finance an ever-larger portfolio of such assets through short-term borrowing until new buyers would be forthcoming.<sup>23</sup> The second mechanism relied on the responsiveness of capital flows to variations in the interest rate. In particular, it was believed that capital outflow would self-correct by pushing interest rates higher, which would then reverse the outflow. However, in the event, neither assumption was borne out, as the two mechanisms clashed.

First, interest rates had to reach exorbitantly high levels in the overnight market before the capital outflow could be reversed. Initially, the expectation of further increases in interest rates stimulated the capital outflow as investors tried to avoid capital losses by exiting sooner than later. Implying a steep jump in the risk premium, there was no longer any prospect of speculative or normal gain but only loss in the foreseeable future. Secondly, the excessively high overnight interest rates raised the cost of short term borrowing prohibitively not only for the exposed primary dealer banks but for all others that managed to weather the initial shock in November, worsening their already brittle financial position. Thus as interest rates remained high after November, the balance sheets of banks continued to deteriorate. It took an inane a political dispute in February for banks to place massive buy orders of dollars with the central bank. This

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<sup>23</sup> Ozatay and Sak (2003: Section 4) report that the most active of the primary dealers was acting as “a market maker to defend its position.”

second sharp reversal in February 2001 (Figure 3) forced the government to abandon the program and float the Turkish Lira, setting off a severe recession.

## 5. Concluding remarks

Turkey's exchange rate based stabilization program had collapsed within just eleven months of its implementation. Unsustainable public debt dynamics and fragility of the banking system have been the main reasons blamed for the demise of the program. However, the banking sector fragility became an issue only after the economy was hit by a liquidity crunch in November 2000. Because the central bank functioned as a quasi-currency board, the liquidity crunch was caused by a reversal in the capital inflow that actually began before November. The onset of the stabilization program brought down interest rates as expected and thus created ample opportunities for speculative investors to make safe one-sided bets. Thus, in our view the real cause of the capital reversal was profit taking on the part of foreign speculative investors holding government securities who conjectured that falling interest rates had reached their limit at the time.

With the benefit of hindsight, it can be seen that the design of the program lacked any provision to cope with the portfolio dynamics driven by the speculative asset price expectations it had generated. The initial success of the program in bringing down interest rates implied substantial capital gains over securities obtained in 1999 and early stages of the program. It was only natural that some investors would take the opportunity to realize these gains at some stage while the "firm" exchange rate commitment was still in place. The program ignored this contingency, and tacitly assumed that as long as it was implemented faithfully long-term investors would be

forthcoming to takeover positions speculators would want to unload. That assumption has proved disastrously wrong.

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