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Effects of International Capital Inflows on the Turkish Economy

Abstract: *The main objective of this study is to investigate the effects of international capital inflows on the Turkish economy. Capital inflows, it is argued, can trigger both private consumption and investment expenditures. Increased consumption demand results in an increase in the relative prices of nontradable sectors with respect to tradable sectors. This eventually leads to a change in the composition of investments in favor of nontradable at the expense of tradable sectors. Increased investment in nontradable sectors does not contribute to the foreign exchange earning capacity of a country, and, given such, a country eventually becomes more vulnerable to currency shock. This can trigger major problems, such as significant capital outflows, large current account deficits, currency crisis, and economic contraction.*

Key words: *capital inflows, currency crisis, tradable and nontradable sectors.*

International capital flows were increasingly directed to developing countries in the 1990s, mostly due to the introduction in many of liberal policies related to financial markets and foreign exchange transactions. Net private flows to developing countries reached $335 billion in 1996, before being deterred by successive crises in the developing world in the second half of the 1990s. Net flows to developing countries have significantly decreased since then. In 2002, such net private flows were estimated to have totaled $112.5 billion, and they are expected to reach $137.1 billion for 2003 (Institute of International Finance 2003).

Turkey made amendments in legislation in 1989 and 1990 that permitted the free movement of capital across her borders. Following these changes, and with

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attractive returns coming from its domestic financial markets, Turkey enjoyed an increase in net foreign capital inflows. However, capital flows to Turkey exhibited a volatile pattern in the 1990s, with significant outflows in 1994 and 2001, when the economy experienced severe currency crises.

During the last decade when Turkey was completely open to international financial flows, the economy underwent very severe crises in 1994 and 2001. Inflows of net foreign capital seem to be closely correlated with economic growth in Turkey. These crises and the correlation between capital inflows and growth has raised concerns about the benefits of letting international capital flow freely across Turkey's borders and the mechanism through which capital inflows affect the economy. Hence, a need emerged for an extensive evaluation of the performance of the Turkish economy in the last decade, with specific regard to capital inflows.

The aim of this study is to evaluate the effects of international capital inflows on the Turkish economy. In doing this, first a brief overview of the experience of capital inflows in Turkey and the economic and financial environment that prevailed there during most of the 1990s will be analyzed, with specific reference to how that environment affected international capital flows into Turkey. The second task is to determine the interaction between international capital flows, private consumption expenditures, and real exchange rates. In studying sectoral price data, special emphasis is given to the distribution of investment between tradable and nontradable sectors. In this study, it is argued that the composition of investment between tradable and nontradable sectors has considerable effect on the making of—or the triggering of—crises in Turkey. This point is important especially in times of capital flow reversals, as increasing investments in nontradable sectors do not help much to increase the foreign exchange earning potential of the economy.

Turkey's Experience with Capital Inflows and the Post-1990 Economic Environment in Turkey

Turkey's Experience with Capital Inflows

Turkey's experience with international capital flows can be isolated according to four main periods. The first, occurred between 1950 and 1974, wherein Turkey's capital account consisted entirely of capital transactions involving the state, either bilaterally or multilaterally. There were practically no private or portfolio capital flows. The second phase is the period between 1974 and 1989. The initial part of this period was characterized by difficulties associated with Middle East oil crises. Turkey was then compelled to ask for the rescheduling of its foreign debt. In practice, this meant Turkey's leave-taking of international financial markets until the 1980s. The second half of the 1980s was a period of increased capital flows to the country, owing to reforms conducted in domestic financial markets and in the domestic economy as a whole. The last period, namely from 1990 onward, was markedly different as Turkey liberalized her capital account in the hope of attracting

Table 1

Net External Financing as a Share of GNP (%)

	Minimum	Maximum	Average (1990–2001)
Turkey	–4.0 (1994)	7.9 (1997)	3.5
Argentina	–0.8 (1990)	7.4 (1997)	5.0
Brazil	–0.9 (1990)	6.7 (1998)	3.5
Mexico	0.9 (1996)	9.1 (1993)	5.4
Hungary	–1.4 (1990)	24.3 (1993)	8.7
Israel	0.6 (1992)	13.1 (1997)	5.0
Poland	0.8 (1993)	9.5 (2000)	5.7
Russia	–0.4 (1999)	21.7 (1992)	4.6
Korea	–3.7 (1998)	9.2 (1996)	2.6
Malaysia	–8.2 (1998)	26.0 (1993)	6.3
Thailand	–4.6 (2000)	17.7 (1995)	5.6

Source: International Institute of Finance.

Notes: For Korea, Malaysia, and Thailand, GDP is used. The numbers in parentheses are the years in which the minimum and maximum were recorded.

ever-growing international financial resources. Turkey realized greater access to international capital after 1990, both measured in terms of magnitude and in terms of the share of net capital account balance in the gross national product (GNP).

Turkey's net external financing as a whole does not look much different from that of other leading developing countries. Turkey's net financing as a share of GNP reached its peak in 1997, at 7.9 percent, but it exhibited considerable volatility in the period between 1990 and 2001. There were large swings in the external financing ability of Turkey in that period. For instance, there was an inflow of foreign capital of 6.7 percent of GNP in 1993, and an outflow of 4 percent of GNP in 1994. However, it should be noted that the same volatile pattern is not typical of all developing countries. Argentina managed to enjoy net external financing of about 6–7 percent of GNP in the 1990s, before going into crisis in 2001. The relative stability of net external financing is also true for countries such as Brazil, Korea, Thailand, Malaysia, Hungary, Israel, Poland, and Russia, although it should be noted that, at times of crises, all of these countries, with the exception of Poland, experienced serious capital outflows.

Table 1 shows the average ratio of net external financing of selected countries to GNP between 1990 and 2001. Turkey had net external average financing of 3.5 percent of GNP in the period. This is less than in many comparable countries.

Another feature of capital flows in Turkey is that they reverse sharply in times of crisis, though they do not rise quite so sharply in periods of economic expansion. Turkey's experience with capital flows mostly resembles that of Brazil's, though Brazil enjoys a higher degree of stability with capital flows.

One of the most important factors that make capital flows more volatile in Turkey in comparison with other developing countries is Turkey's relatively poor performance as regards foreign direct investment (FDI). Except for 2001, Turkey has never managed to attract FDI in excess of $1 billion per year. The share of FDI in Turkish GNP has hovered around 0.5 percent or less, except in 2001, when it peaked at 1.2 percent.

Turkey's reliance on external financing mostly in the form of short-term bank loans and the portfolio investments of foreigners in domestic stock markets, the government securities market, and the short-term Turkish lira market, explains the excess volatility in capital flows in the last decade (see Table 2). Facing sudden reversals of capital inflows, Turkey had to rely on loans extended mainly by the International Monetary Fund (IMF), especially following domestic currency crises in 2000 and 2001.

A Brief Overview of the Economic Environment in Turkey in the 1990s

As mentioned, Turkey liberalized its capital account transactions in 1989, and flows of international capital immediately intensified, especially after 1990 when Turkey introduced full convertibility to the Turkish lira. Although international financial institutions especially welcomed the decision, there were significant objections to the timing of the move in many economic circles. It was argued then that Turkish financial markets were not sufficiently developed: that the economy was not stable enough to deal with the high volatility of international capital flows. Moreover, there were concerns about the proper regulation and supervision of financial markets that free capital mobility would necessitate (Öniş 1996; Rodrik 1991; Yeldan 2001; Yentürk 1999).

From the government's perspective, and leaving aside ideological concerns, the liberalization of international capital movement was extremely appealing in political terms. In this line, Ersel (1996) states that the decision of liberalizing the international capital flows was more political than economic. In the Turkish case, the benefit that was expected from the capital flows in fueling up the growth was to limit the rise in the borrowing cost of the Treasury that faced deterioration in public finances and an increase in associated financing needs. The government's willingness to attract foreign funds can be better understood given the small size of the domestic financial system and the insufficiency of funds that the government can borrow with a cost that will not hinder growth and completely crowd out the private sector.

Hence, the government sought to attract foreign capital to Turkey by amending

Table 2

Short-Term Foreign Debt Stock of Turkey (US$ million)

	1992	1993	1994	1995	1996	1997
Total short-term debt	12,660	18,473	11,187	15,500	17,072	17,691
Central bank	572	667	828	993	984	889
Central government	0	0	0	0	0	54
Commercial banks	7,157	11,127	4,684	6,659	8,419	8,503
Other sectors	4,931	6,679	5,675	7,848	7,669	8,245
Total debt stock	55,590	67,350	65,600	73,280	79,194	84,182
Short-term debt/total (percent)	22.8	27.4	17.1	21.2	21.6	21.0
Short-term debt/GNP (percent)	7.9	10.2	8.7	9.2	9.3	9.2

	1998	1999	2000	2001	2002
Total short-term debt	20,774	22,921	28,301	16,241	15,155
Central bank	905	686	653	590	451
Central government	0	0	1,000	0	0
Commercial banks	11,159	13,172	16,900	7,997	6,344
Other sectors	8,710	9,063	9,748	7,654	8,360
Total debt stock	96,312	102,12	118,62	113,95	131,55
Short-term debt/total (percent)	21.6	22.4	23.9	14.3	11.5
Short-term debt/GNP (percent)	10.2	12.3	14.1	11.3	8.3

Source: Undersecretariat of Treasury, Central Bank of Turkey.

laws and regulations to facilitate capital mobility. Given the then-high real returns on assets denominated in Turkish lira, especially on government debt instruments (GDIs) issued by the Treasury, Turkey immediately enjoyed a rapid increase in international capital flows. Unfortunately, this was also the start of a vicious cycle in which high real interest rates attracted foreign funds, and in which successive governments increased their spending and thus their financing needs, relying on foreign funding in a somewhat heavy-handed and irresponsible manner. Greater international financing needs thus beget the maintenance of high yields to attract foreign investment into Turkey.

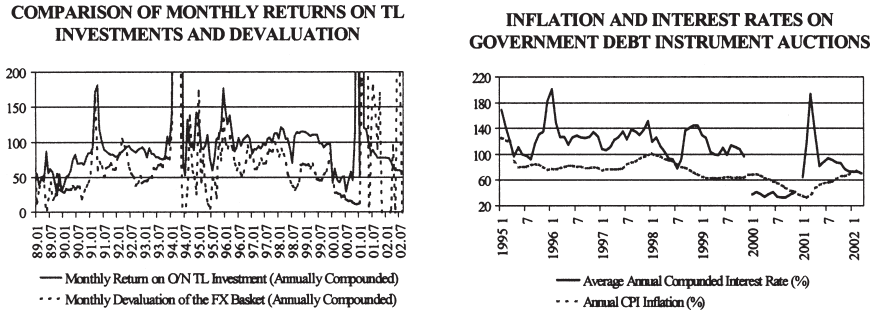
The state deficit rose significantly throughout the 1990s, accompanied by rising related interest expenditures. In fact, it can be argued that one of the reasons the politicians did not need to deal with rocketing up budget deficits was the additional comfort that has been provided by foreign funds. Hence, at least in the Turkish case, the idea that free capital mobility will punish bad state policies and reward good ones has proven wrong in the longer-term perspective. Turkey enjoyed its highest inflows of capital between 1995 and 1998, during which its budget deficit almost doubled.

Given the increasing volume of international capital flows, the Turkish lira appreciated in real terms, as it proved impossible for the central bank to optimally control the Turkish lira given its inflation considerations. As successive crises painfully demonstrated, the overappreciation eventually proved costly for the country, as rise led to sharp fall.

This general picture did not change significantly throughout the 1990s, even after a severe currency crisis in 1994. Figure 1 shows the trends in interest and exchange rates on a monthly basis from 1989 to 2001. The first graph illustrates the monthly return on Turkish lira instruments against the monthly devaluation rate of the foreign exchange (FX) basket on an annually compounded basis.[1] The graph shows the yields present for investors after adjusting for exchange rate movements. Turkish lira yields were much higher than the devaluation during most of the noncrisis periods, meaning that investing in Turkish lira–denominated assets was quite attractive. The spread between Turkish lira interest rates and devaluation is not less than 20 percent for most of the period, indicating that investors sought a high-risk premium for investing in Turkish lira–denominated assets. In fact, this phenomenon motivated Turkish banks to carry open foreign exchange positions for considerably long periods. In opening up their foreign exchange positions, Turkish banks both relied on the foreign exchange deposits of Turkish residents as well as on foreign borrowing mostly in the form of syndicated loans, generally of one-year maturities.[2]

The second graph in Figure 1 shows monthly average interest rates in Treasury GDI auctions, compared with inflation. This graph shows that the real returns on investments in Turkish lira–denominated assets were attractive for domestic investors as well. Figure 1 challenges the argument that the free movement of capital

Figure 1. **Interest Rate and Exchange Rate Developments in Turkey**



Source: State Institute of Statistics, Undersecretariat of Treasury, and authors' calculations.

flows will result in decreased interest rates in Turkey and their convergence with prevalent international rates.

Hence, before starting to formally analyze the effects of capital inflows on the Turkish economy, it can be argued that essentially it was the persistently high real returns on Turkish lira–denominated assets in domestic markets that attracted foreign capital into Turkey.

Understanding the Impacts of International Capital Inflows on the Turkish Economy

Before proceeding with our investigation of the impact of international capital flows on the Turkish economy, two critical facts should be reiterated: first, the public sector experiences large and ever-increasing deficits, and second, the domestic financial system is not deep enough to meet the financing needs of the public sector without crowding out the private sector.

In terms of assumptions made here, besides the effective legal and regulatory amendments, the associated high real returns on the Turkish lira–denominated assets are assumed to be the main driving force behind international capital inflows to Turkey.

Generally, capital inflows are assumed to affect the economy by triggering domestic consumption and thereby investment. According to the underlying reasoning of this study, capital inflows are first assumed to increase consumption demand. Continuing capital inflows and increasing consumption demand are thus assumed to trigger investment demand. Due to the increase in the relative prices of the nontradable sector, which is mainly motivated by an increase in aggregate demand, investments are more heavily channeled to this sector.[3]

These interactions are presented in the following three subsections. The first will consider consumption demand, followed by investment demand in the sec-

ond. The final subsection will be devoted to an analysis of the implications of increasing consumption and investment on tradable and nontradable sectors.

Impact of International Capital Inflows on Private Consumption Demand

In this section, the interaction between the international capital flows and private consumption demand is investigated for Turkey since capital account liberalization. In doing so, a quarterly vector autoregression (VAR) model will be constructed for the period 1987–2002. The variables that will be included in the model are the ratio of the capital account to the balance of payments (as a proxy of international capital inflows), the annual growth rate of private real consumption expenditures, and the real exchange rate.[4]

The theoretical justification for setting such a model comes from the vast research on the exchange rate–based stabilization (ERBS) programs implemented in various developing countries in the past two decades. In fact, in most of the period of post–capital account liberalization, Turkey implemented an exchange rate regime similar to a managed float. Under this, the authorities did not defend a particular value, band, or path for the exchange rate, but acted according to their understanding of how much the exchange rate would be allowed to move or how such movement would be resisted in various circumstances.

The Turkish lira appreciated significantly in real terms in periods of high capital inflows. Hence, it can be argued that, in terms of exchange rate policies, Turkey's experience since 1990 resembles those of developing countries that had implemented formal ERBS programs, although Turkey implemented a formal ERBS program only in 2000. These stylized facts are presented in many studies.[5] Before elaborating on the Turkish case, a brief look here at those studies provides valuable insight.

Hamann (2001) notes that the common features of ERBS programs are boom–bust cycles, consumption boom, real exchange rate appreciation, and worsening trade and current account balances. For the purpose of this study, one of the most important stylized facts of ERBS programs is the initial increase in economic activity, particularly in private consumption, which is followed by contraction. Calvo and Végh (1997) argue that the main explanation for this development is the lack of credibility of the governments that implement those programs. The lack of credibility often stems from market skepticism concerning the temporality of the programs.

Another important common feature of the ERBS programs is real exchange rate appreciation. In equilibrium theories, real exchange rate appreciation is hypothesized to result from an expansion of overall domestic spending that increases the demand for both tradables and nontradables. Nontradable prices rise in response; tradable prices, however, are fixed by the nominal exchange rate and foreign prices (Kiguel and Liviatan 1992; Végh 1992). This is also the underlying theory in our analysis, which is presented in the last section of this study. As re-

gards inertial theories, Kamin (1996) notes that real exchange rate appreciation represents a movement away from equilibrium in the nontradable goods sector. Another set of literature that is of utmost importance for the purpose of this study focuses on the effects of capital inflows on developing country economies. Corden (1994) argues that there is a possibility that capital inflows bring about an appreciation of the real exchange rate (the relative price of traded to nontraded goods) with adverse effects on traded-goods production in the domestic economy. Reinhart and Reinhart (1998) argue real exchange rates appreciation becomes inevitable as capital inflows became persistent, and curtailing the monetary expansion associated with the accumulation of foreign exchange reserves became increasingly difficult and costly.

Looking at the performance of the Turkish economy since capital account liberalization, it is possible to detect interaction between international capital inflows, an increase in private consumption, and real exchange rate appreciation. Given this interaction, and considering the literature cited above, it is possible to justify the use of the three-variable VAR model presented at the beginning of this section.

A quarterly VAR model has been run for the period following capital account liberalization, namely, 1990–2002.[6] The variables that were used in the VAR model were CAPBALGDP, RER, and RPCONGR.[7]

For the capital inflows, instead of CAPBALGDP, the capital account balance of the balance of payments was also used in the model. The results were not significantly different from those presented, and hence they have not been included here.[8] The variables that were used in the analysis were checked for unit roots. As presented in Table 3, the real exchange rate index proved nonstationary. In order to tackle this problem, the first difference of the real exchange rate index series was used, and as has been presented in Table 3, the unit roots problem was resolved. The other two series were found to be stationary. Since the data is in quarterly frequency and the estimation period is not too long, and in order not to lose too many degrees of freedom, the VAR model is specified with four lags.

Toward analyzing the interaction between these three variables, the impulse response functions of the system are presented. Specifically, we attempted to see how a variable's current and future values would be affected by an impulse given to an error term in the VAR model. In other words, impulse response functions exhibit the dynamic behavior of a variable in response to one standard deviation shock given to another variable (to its error term).

To interpret the outcomes of the impulse response functions as stated above, there should be no contemporaneous correlation among the error terms. However, in reality, this is not the case. There are always nonzero elements in the contemporaneous variance–covariance matrix of error terms of VAR models. When the errors are correlated they have a common component that cannot be identified with any specific variable. Therefore, in order to evaluate the results of the impulse response functions properly, the VAR model should be transformed in such a way that the contemporaneous correlation between the error terms is eliminated. In

Table 3

Test for the Unit Roots

	ADF test statistic	Lag length	5 percent critical value
CAPBALGDP	–5.23	0	–2.91
D(RER)	–3.77	4	–2.91
RPCONGR	–5.82	3	–3.49
RPINVGR	–6.99	3	–3.49

other words, the variance–covariance matrix of the error terms of the VAR model should be orthogonalized. In this study, the Cholesky decomposition method has been used to resolve this problem. As there is no unique way to apply Cholesky decomposition, and based on the reasoning of this study, the variables in the VAR model appear in the order of CAPBALGDP ⇒ D(RER) ⇒ RPCONGR. Two standard deviation confidence bands around the impulse response functions have been constructed by using the Monte Carlo simulation technique.

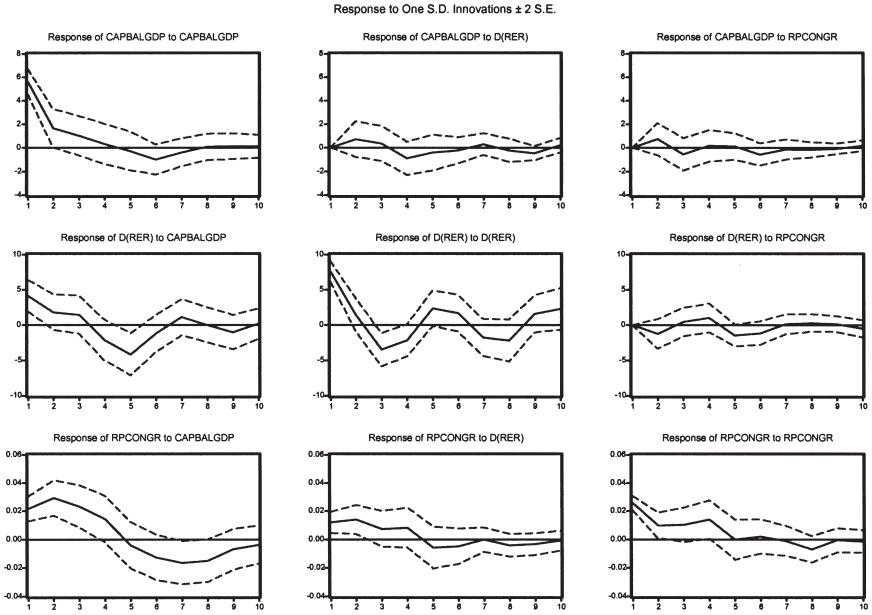
As can be seen in Figure 2, net foreign capital inflows in Turkey have a positive impact on private consumption, as is expected, as has also been found by other studies.[9] A shock in net foreign capital inflows has a positive impact on private consumption for about four quarters. In line with the expectations of this study, and with the experiences in many other developing countries, an increase in net capital inflows seems to result in a real appreciation of the Turkish lira. This effect in our data, however, continues for only about two quarters. The appreciation of the Turkish lira also seems to trigger private consumption expenditures. This effect continues for about three quarters.

To sum up, the results of the VAR analysis give support to the argument that since capital account liberalization in Turkey, increases in net capital inflows resulted in the real appreciation of the Turkish lira and triggered private real consumption. The appreciation of the Turkish lira in real terms also seems to have contributed to the growth in real consumption expenditures of the private sector.

Impact of International Capital Inflows on Private Investment Demand

After showing that foreign capital inflows trigger private consumption demand, the next task is to investigate whether increased consumption demand leads to an increase in private investments. In doing so, the interactions between foreign capital inflows, private consumption expenditures, and private investment expenditures are analyzed.

Figure 2. **Impulse Response Functions of the VAR Model with Capital Inflows, Real Exchange Rate Index, and Private Consumption**



Economic theory suggests different approaches in estimating the effects of capital inflows on investments. The neoclassical model of intertemporal utility maximization by a representative individual, subject to the constraint of capital accumulation within a neoclassical production function, is used in some of the studies. In these models, foreign capital inflows are no different from any other increase in income. Obstfeld (1998), using such a model, argues that countries with insufficient levels of domestic capital can borrow abroad in order to increase domestic investments and promote growth without trying to increase the level of domestic savings. However, these utility-based models are hardly appropriate for developing countries, as these countries need a greater degree of capital market development to secure an equalization of lending and borrowing rates. This is obviously not the case for most developing countries, including Turkey.

Bosworth and Collins (1999) note that the empirical literature on investment reflects three different views on investment decisions. The accelerator theory puts emphasis on the proportionality between the stock of capital and output, and ties investment to the rate of growth of output. Earlier versions of the neoclassical model contained an extension to the accelerator model by relating the optimal stock of capital to the relative cost of capital, as well as the level of output. Later versions of the neoclassical model, on the other hand, emphasize the marginal

q-ratio, which represents the relationship between the market value of additional investment and its replacement costs as a determinant of investment.

Due to the lack of measures of market valuation in developing countries, and the lack of proper tax and interest rate data, research on the determinants of investments has deviated considerably from the theoretical models presented above. Bosworth and Collins (1999) argue that nearly all of the empirical research on investment in developing countries has been conducted in an ad hoc manner. An extensive survey of research on the determinants of investments in developing countries was presented in Serven and Solimano (1993). They argue that output growth, terms-of-trade improvements, and reductions in external debt have strong and positive influences on investment.

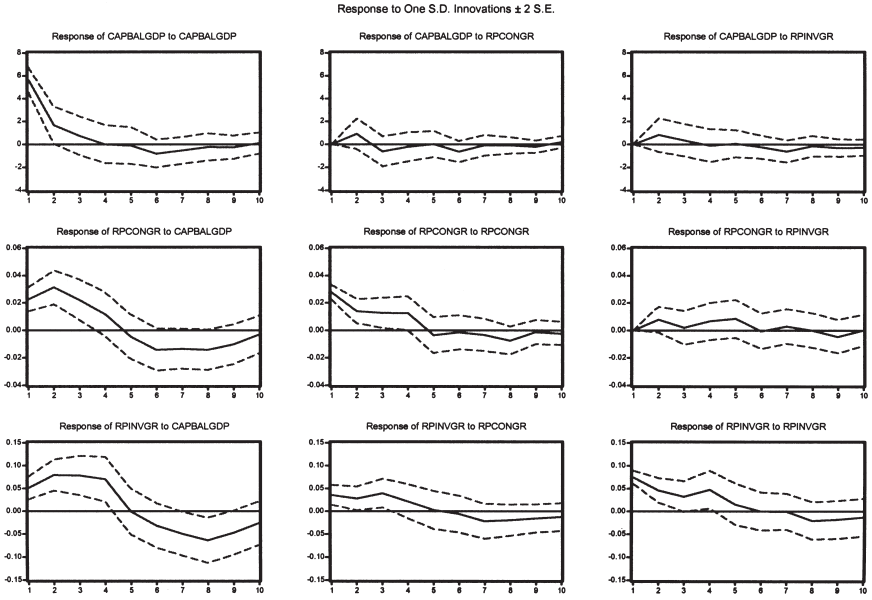
In our study, and in light of economic theory, existing empirical literature, and data considerations, the impact of international capital inflows on investments in Turkey is investigated in the spirit of the accelerator theory. Private investment expenditures in Turkey are assumed to be determined by growth in output and capital inflows. However, to follow the reasoning of the previous section, private consumption expenditures are used instead of growth of output. Given the strong correlation between these two variables in the Turkish case, this choice has theoretical grounding. The real exchange rate variable that was used in investigating the relationship between capital inflows and private consumption expenditures has been dropped in analyzing the interaction between capital inflows, consumption, and investments. The reason for this is that real exchange rates are not considered as determinants of investment in the accelerator theory.

In order to analyze the interaction between capital inflows, consumption, and investments, a quarterly VAR model that covers the 1990–2002 period is constructed. The variables that are used in the VAR model are CAPBALGDP, RPCONGR, and RPINVGR.[10]

For the capital inflows, instead of CAPBALGDP, the capital account balance of the balance of payments is used in the model. The results were not significantly different from the ones presented in this study, and hence have not been included here.[11] Time series properties of the variables used in the model have been checked for, and it has been determined that all of the series are stationary. The results of the unit root tests are presented in Table 3. Since the data is in quarterly frequency and the estimation period is not too long, and in order not to lose too many degrees of freedom, the VAR model is specified with four lags.

For analyzing the interaction between these three variables, impulse response functions of the system are presented. The variance–covariance matrix of the error terms of the VAR model has been orthogonalized by using the Cholesky decomposition method. Once again, as there is no unique way to apply Cholesky decomposition, and based on the macroeconomic theory and the reasoning in this study, the variables in the VAR model appear in the order of CAPBALGDP ⇒ RPCONGR ⇒ RPINVGR. Two standard deviation confidence bands around the impulse response functions have been constructed by using the Monte Carlo simulation technique.

Figure 3. **Impulse Response Functions of the VAR Model with Capital Inflows, Private Consumption, and Private Investment**



As is evident Figure 3, net foreign capital inflows have a positive impact on private consumption expenditures, as detected in the previous section. A shock in net foreign capital inflows has a positive effect on private consumption expenditures for four quarters. According to the impulse response functions, net foreign capital inflows have a positive impact on private investment expenditures that lasts for about four quarters. Finally, according to the impulse response functions, private consumption expenditures seem to trigger private investment, in line with the economic reasoning in this study. Figure 3 shows that an increase in private consumption demand seems to have a positive impact on investments for three quarters. Private investment expenditures, on the other hand, do not seem to have a significant impact on private consumption expenditures.

Impact of Capital Inflows on Sectoral Breakdown of Investments: Tradable Versus Nontradable

The analyses in the preceding sections present evidence in favor of the argument that net foreign capital inflows affect consumption and investment in the private sector in a positive manner. Based on the findings that capital inflows trigger investments, this section considers whether capital inflows have any impact on the distribution of investments between tradable and nontradable sectors.

There is a vast literature on the effects of capital account liberalization on currency and banking crises in developing countries, especially since 1990.[12] It is now accepted by many that international capital flows increase the vulnerability of developing countries to such crisis. However, there is no consensus on the mechanisms through which capital inflows make countries more vulnerable to crisis. We argue that one of the most important reasons why large capital inflows resulted in profound crises in Turkey is the distribution of private investments more in favor of nontradable than tradable sectors during episodes of capital inflow.

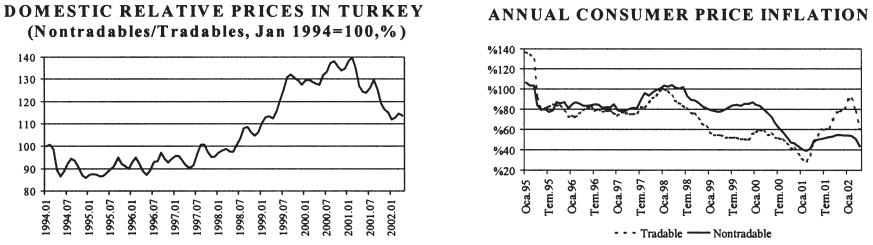
Like many other developing countries, Turkey mainly relies on manufacturing industry exports for foreign exchange earnings. In terms of current account terminology, exports are the main source of foreign currencies, and thus should help maintain current account deficits at "reasonable" levels. As has been presented in the preceding sections, an economy initially grows in times of large capital inflows. Together with growth, an overvalued domestic currency leads to a surge in imports. If export growth cannot keep pace with import growth, the sustainability of the current account deficit may be jeopardized given the unsustainable nature of international capital inflows.

Hence, it is quite important to determine whether international capital flows might place a long-term constraint on foreign exchange earning capacity. In other words, during large capital inflows, does the distribution of domestic investment change in favor of the sectors (i.e., nontradable) that do not generate foreign exchange inflows?[13] We analyzed the case of Turkey; however, due to the lack of quarterly data on sectoral investments, and the shortness of the period (1990–2002) that the annual data cover, it was not possible to conduct any econometric work on this issue. Instead, monthly price indices and annual sectoral investment figures are explored in order to detect whether there has been a change in the distribution of investments among sectors.

The reasoning that will be followed in analyzing the impact of capital inflows on the sectoral composition of investments is as follows: Increased consumption demand leads to a rise in the relative prices of nontradable sector products. This, in turn, leads to a rise in investments in nontradable sectors. Despite appearing as simplistic, this reasoning seems to be quite valid in explaining what happened in Turkey in the 1990s. Developments in relative prices are presented below, followed by an examination of investment data for evidence of an investment shift toward nontradable sectors.

The argument that capital inflows increase the relative prices of nontradable sector output is based on the assumption that producers react to higher domestic consumption demand with price increases. The reason why tradable producers cannot increase their prices as much as nontradable producers is that they compete with the rest of the world. In other words, the prices of goods exposed to international trade cannot be much higher than such prices in the rest of the world, otherwise they would lose sales to imported goods.[14] Hence, during episodes of large capital inflows, producers in nontradable sectors reap greater benefit of increased

Figure 4. **Development of Prices in Turkey in Tradable and Nontradable Sectors** (calculated from the CPI based on 1994 = 100)



Source: State Institute of Statistics and authors' calculations.

domestic consumption demand. This translates into an increase in the relative prices of nontradable products.

There are no official data for the breakdown of prices into tradable and nontradable sectors in Turkey. However, it is possible to calculate the price indices of these sectors, as the State Institute of Statistic's (SIS) consumer price index (CPI) presents price developments in various sectors. In order to do this, first the weights of all subsectors in the CPI were calculated.[15] Afterward, these subsectors were classified according to whether they have foreign exchange earning capacities or not. In line with this reasoning, the tourism sector is regarded as a tradable sector.[16] Later, using sectoral weighting, price indices for tradable and nontradable sectors are calculated.

Figure 4 depicts developments in sectoral prices. Relative price movements are quite in line with the suggestions in this study, as well as with the experiences of other developing countries (Ghosh and Pangestu 1999; Kamin 1996; Radelet and Sachs 1998; Rebelo and Végh 1995; Reinhart and Végh 1995). The relative prices of nontradable goods in terms of tradable goods, which under the assumptions of open economy macroeconomics is assumed to be equal to the real exchange rate, increased steadily in the post-1994 period, until the crisis in February 2001.

This fact can be followed from the first graph in Figure 4. The second graph in Figure 4 presents the same fact with annual inflation rates. Except for 2001 and 2002, the monthly annual price increases in tradable sectors have been less than the price increases in nontradable sectors. The severe contraction in the private consumption demand seemed to constrain the price increases in the nontradable sectors, while prices in tradable sectors rose higher, mainly due to the severe real depreciation of the currency following the central bank's 2001 decision to free-float the Turkish lira. On the other hand, a consumption boom during the implementation of the ERBS program in 2000 saw firms in nontradable sectors increase their prices more than firms in tradable sectors.

Until now, it has been shown that a surge in net international capital flows has a positive impact on private consumption expenditures. Increased domestic con-

sumption demand, on the other hand, seems to cause an increase in the relative prices of nontradable sector goods in terms of tradable sector goods. On the other hand, it has also been found that increased consumption triggers investments in the private sector. Now, the task is to detect whether the rise in investment appetite affects nontradable sectors more than the tradable sectors. If the answer to this question is affirmative, than it will be concluded that international capital flows likely do negatively affect long-term foreign exchange–generating capacity, paving the way for currency crisis.

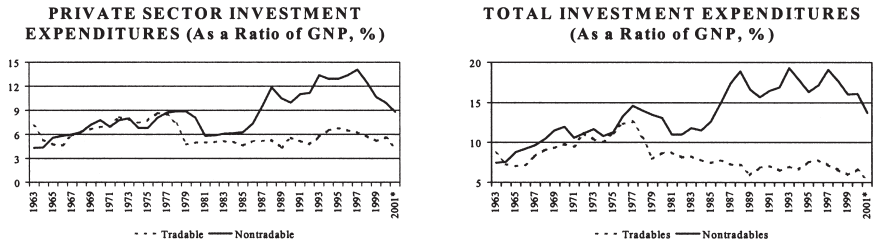
As has been noted, there are no quarterly data concerning sectoral breakdowns of investments in Turkey. The SIS data on national accounts present quarterly figures about investment expenditures, but only for investments in machinery and equipment and for building construction. The State Planning Organisation (SPO) releases sectoral investment data in annual frequency, and since Turkey's experience with international capital flows dates back only to 1990, it is not possible to conduct any meaningful econometric work with that data.

However, the SPO data are still valuable in analyzing what has happened in Turkey in terms of composition of investments. As can be followed from Figure 5, there has been a marked increase in both private and total investments that are directed to nontradable sectors starting from the second half of the 1980s, while investment in the tradable sectors stagnated. The recent crises in Turkey seem to have affected investment as a whole, and in both tradable and nontradable sectors. Hence, based on the graphical analysis, it can be argued that capital inflows do indeed impact the distribution of investments between tradable and nontradable sectors.

Developments in domestic relative prices speak to why capital has been invested in nontradable over tradable sectors. In fact, for a more proper analysis of investment decisions, data about profitability in these sectors would be of much greater use. However, given the developments in relative prices, a rough comparison of the costs that both sectors face may speak to the comparative profitability of the sectors. Firms in both sectors are subject to the same financing constraint. In other words, they borrow mainly from domestic financial markets, and the lenders distinguish the firms more by their past performances than by their foreign exchange earning capacity. Labor costs in the two sectors need not differ, either. In fact, labor costs in the tradable sector may even be higher, as most of the firms in this sector work in the manufacturing industry, and labor is relatively more organized there than in others. Hence, roughly speaking, higher prices in the nontradable sector may translate into higher profitability.

In the long term, the process of the interaction of capital inflows with the domestic economy described in this study is unsustainable. This process initially causes an increase in economic growth, employment, and in the purchasing power of Turkish lira earners. However, in the later stages, the country invariably faces a significant current account deficit. Since investments are channeled more to the sector that cannot generate foreign exchange reserves, a halt in foreign capital

Figure 5. **Development of Investments in Turkey in Tradable and Nontradable Sectors**



Source: State Planning Organization.
* SPO estimate.

inflows, which are mostly of short-term maturity, harshly interrupts the Ponzi-type game that has been played for years.

Conclusion

In this study, we investigated the impact of international capital inflows on the Turkish economy. At the start of the analysis, it was assumed that foreign capital flows to Turkey are mainly motivated by high real returns on Turkish lira-denominated assets as a result of high public-sector deficits, aside from the legal and regulatory changes that were introduced in 1989 and 1990. Second, it has been proposed that capital inflows are associated with changes in private consumption and investment expenditures, as well as with real appreciation of the domestic currency. This latter effect was studied in the last section of this study, this time in the form of a change in domestic relative prices. We find that a relative increase in the prices of nontradable goods with respect to tradable goods leads to increased investment toward nontradable sectors.

Our findings support the argument that a surge in capital flows helps the economy grow as a whole, by triggering private consumption demand first and investment expenditures next. Increases in private consumption demand tips domestic relative price development in favor of the nontradable sector. This causes a larger increase in investment directed to nontradable sectors. Hence, it can be argued that a surge in the capital inflows eventually leads to a rise in investment into nontradable sectors, whereas investment into tradable sectors can only stagnate, if not fall.

Given the concerns about the sustainability of capital inflows, the argument that investments are channeled to nontradable more than to tradable sectors has a crucial implication on the processes that lead to financial crises in Turkey. As the investments in nontradable sectors do not add much to the foreign exchange generating capacity of the economy, in times of capital inflow reversals, Turkey cannot find any means of substituting the sources of funds that are necessary to keep

the economy functioning. Hence, the process that starts with large capital inflows eventually ends up in crisis.

It should be noted, however, that the main point of this study is not that it is "capital inflow" itself that creates crises via current account deficits. It is, rather, the handling of capital inflows that creates crises in Turkey. In the 1990s, successive governments failed to implement policies that would entail the sustainability of international capital flows to Turkey, and they failed in preserving and increasing the long-term competitiveness of the country. Large and ever-increasing public-sector deficits were not addressed. Structural problems in the banking sector were ignored. Regulatory and supervisory reforms in the financial sector as a whole lagged far behind on the agenda. There was no serious effort to improve the efficiency and enhance the productivity in export sectors, or in the manufacturing industry, in particular. The fight against the inflation has never been the top priority of either the government or the private sector. Given all of these deficiencies, the absolute freedom of international capital flows added to the vulnerability of the Turkish economy.

Notes

1. Turkish lira interest rates are the overnight rates of the central bank. The FX basket consisted of US$1 + DM1.5.

2. High and persistent inflation rates in Turkey in the past two decades tempted many domestic residents to increase their foreign exchange denominated savings. Although Turkish banks encouraged FX deposits up to a certain level, the main motive behind increasing FX deposits was the preferences of the savers.

3. Relative price of nontradables to tradables is a proxy of real exchange rates in an open economy macroeconomics framework.

4. The real exchange rate index is calculated as the real value of the currency basket of US$1 + DM1.5 against the Turkish lira, based on the CPI. An increase in the index means the Turkish lira is appreciating in real term.

5. Among these studies, Calvo and Végh (1997), Eichengreen et al. (1998), Mussa et al. (2000), Rebelo and Végh (1995), and Reinhart and Végh (1995) are the most noteworthy.

6. E-Views econometric software has been used in estimations.

7. The definitions of the variables are as follows: CAPBALGDP—quarterly capital account balance as a ratio to GDP; RER—real exchange rate index of the currency basket of US$1 + DM1.5 against the Turkish lira, based on the consumer price index. An increase in the index means Turkish lira appreciation in real terms; RPCONGR—private consumption expenditures in 1987 prices, as a logarithmic difference over the same period of the previous year.

8. To test the robustness of the model results vis-à-vis changes in the definition of capital inflows, the model has been run by using the long-term item of the balance of payments as the measure of capital inflows. The results were not significantly different from those presented in this study. Portfolio inflows and short-term capital inflows were not used as measures of capital inflows in this study due to their volatile nature.

9. See Ulengin and Yentürk (2001) for an analysis of capital inflows on aggregate spending categories in Turkey.

10. The definitions of the variables are as follows: CAPBALGDP—quarterly capital account balance as a ratio to the GDP; RPCONGR—private consumption expenditures in

1987 prices, as logarithmic difference over the same period of previous year; RPINVGR—private investment expenditures in 1987 prices, as logarithmic difference over the same period of previous year.

11. See note 8.

12. See Eichengreen et al. (1996), Frankel and Rose (1996), Goldfajn and Valdés (1997), Kaminsky and Reinhart (1999), Kaminsky et al. (1997), and Sachs et al. (1996) for a review of the literature.

13. Ghosh and Pangestu (1999), Radelet and Sachs (1998), Ulengin and Yentürk (2001), and Yentürk (1998) argue that this has been the case in developing countries.

14. Although there is still debate over whether liberalization of international trade leads to a convergence of the prices of tradable goods, in this study it is assumed that tradable sector prices are constrained by the prices of their equivalents in the rest of the world. See Rodriguez and Rodrik (2000).

15. The index cannot be extended further back, since the CPI used before the one that is currently in use was 1987 = 100 based, and the subsectors in that index are not the same as that in 1994 = 100 based index.

16. If the classification of the sectors was done according to separating for services sector, tourism would have been among the nontradable sectors. However, for the purpose of this study, foreign exchange earning ability is a more important criterion.

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