

# **Globalisation of the interaction between fiscal and monetary policy**

Mehmet Yörüköglu and Mustafa Kılınç<sup>1</sup>

## **Abstract**

The interaction between fiscal and monetary policies evolves over time and differs from country to country. In this study, we first present the case of Turkey. During the 1990s, the country's fiscal deficits and public debt ballooned. Monetary policy was severely constrained by the resulting high-risk outlook for the economy, combined with the underdevelopment of domestic financial markets. In the 2000s, however, a significant fiscal consolidation has allowed fiscal policymakers to move from a procyclical to a countercyclical stance, increasing the effectiveness of monetary policy. In the second part of the paper, we discuss the implications of globalisation for the interaction between fiscal and monetary policy. One possible channel comes from the interplay of the inflation rates, policy rates and real exchange rates between emerging and advanced countries. Structural factors such as differences in consumer baskets and quality measurement error, or convergence processes might lead to higher inflation rates and currency appreciation in emerging countries. It might be desirable to smooth this appreciation and contain excessive exchange rate volatility. In this regard, monetary policy in emerging countries might be constrained by inflation differentials and the low level of policy rates in developed countries. In this case, a possible policy option would be to use fiscal consolidation, a strategy that has been observed in emerging countries over the past decade.

**Keywords:** Fiscal policy, monetary policy, globalisation, real exchange rates

**JEL classification:** E52, E62, F42, F31

---

<sup>1</sup> Central Bank of the Republic of Turkey.

## 1. Introduction

The global financial crisis of 2008 and Europe's sovereign debt problems have highlighted the importance of the interaction between fiscal and monetary policy. Fiscal imprudence can significantly constrain monetary policymakers by forcing them to take into account additional concerns, such as borrowing spreads. It also weakens the transmission of monetary policy by, for instance, hampering the development of domestic currency markets. In contrast, a sound fiscal policy can help monetary policy both in the short term, by allowing fiscal policy to be conducted in a countercyclical way, and in the long run by strengthening the transmission of monetary policy. A stable fiscal stance improves perceptions of country risk, helps develop the domestic currency markets, and mitigates structural problems such as maturity and currency mismatches.

Turkey presents an excellent case study of how fiscal policy, which significantly constrained monetary policy in the 1990s, evolved into a sound framework that supported monetary policy over the business cycle and strengthened the transmission of monetary policy in the 2000s. Turkey's experience is in line with that of most other emerging countries as presented by Frankel et al (2011). In that paper, the authors show that, over the past decade, many developing countries have moved from a procyclical to a countercyclical fiscal policy and that stronger institutions were partly responsible for this change.

In this paper we first analyse in detail the evolution of fiscal policy in Turkey. We show the implications for financial markets of increasing public debt and high budget deficits, the development of domestic currency financing and dollarisation, and the effectiveness of central bank policies. We note that fiscal dominance arising from increasing public debt tended to "crowd out" the availability of financial funds to the private sector, and hampered the development of domestic currency financial markets. As a result, there was a high degree of dollarisation in deposit/credit markets as well as in public debt instruments. This high level of dollarisation, coupled with the partial dependence of fiscal policy on direct central bank advances, significantly constrained the effectiveness of monetary policy. Exchange rate pass-through was very high and the credit channel was weak. As a result, Turkey experienced very high and volatile inflation in the 1990s. After the banking and currency crisis in 2001, Turkey implemented important reforms in the monetary, fiscal and financial areas. A significant fiscal consolidation has been achieved and the public debt-to-GDP ratio has steadily fallen. Monetary policy was granted independence in 2001, and inflation has since been brought down from above 60% to below 10%. Substantial reforms in financial markets have also improved the health of the banking sector. Overall, in the 2000s Turkey has achieved a solid fiscal consolidation, successful disinflation, the development of domestic currency financial markets and de-dollarisation. Emergence of a strong credit channel along with a lower level of exchange rate pass-through has significantly strengthened monetary policy transmission. During the 2008 global financial crisis, the banking sector's robustness and the strong countercyclical reactions of both fiscal and monetary policies helped the economy to recover quickly from the crisis. At this time, strong fiscal balances contributed to the good risk perceptions of the Turkish economy, and provided a wide operational space for the monetary policy response.

In the second part of the paper, we look at the global dimensions of fiscal and monetary policy interactions. We show that there are persistent differentials in inflation rates between advanced and developing countries, ie over the last decade inflation has been consistently higher in developing countries than advanced countries. Some part of this difference might come from measurement issues between advanced and emerging countries, differences in the CPI basket weights and the convergence process of developing countries. As Yörüköglu (2010) demonstrates, measurement issues and basket differences can make developing country inflation look significantly higher than advanced country inflation. This difference puts upward pressure on both policy rates and the real exchange rates of the developing countries. However, faced with the persistent inflation differential and the resulting steady

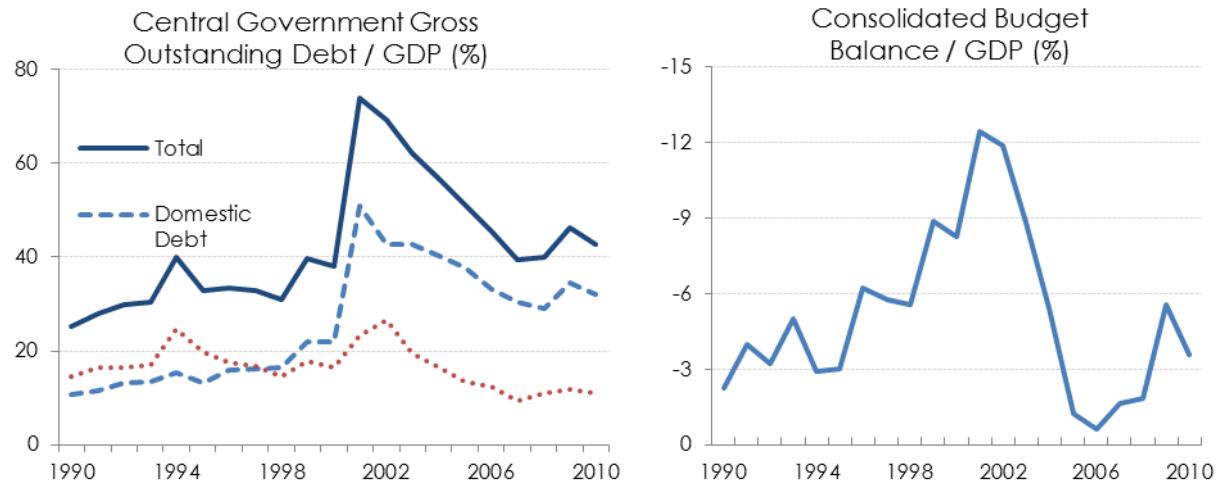
upward pressure on real exchange rates, developing countries might find it optimal to reduce that pressure by consolidating their fiscal balances and applying a tight fiscal policy. For advanced countries, this mechanism works in reverse, in the sense that low inflation along with a depreciating domestic currency helps to loosen their fiscal policy. In this part, we present the relevant data and elaborate on how the global interplay of inflation, policy rates and exchange rates can affect the interaction between fiscal and monetary policy.

In the rest of the paper, Section 2 outlines the fiscal and monetary policy interactions experienced in Turkey, Section 3 outlines the global dimensions of this interaction and Section 4 concludes.

## 2. Evolution of fiscal-monetary policy interaction in Turkey from the 1990s to the 2010s

Figure 1 presents the evolution of Turkey's public debt and budget balance as a ratio to GDP between 1990 and 2010. As the left-hand panel shows, the gross debt-to-GDP ratio almost tripled from 25% in 1990 to 74% in 2001, mostly due to the domestic debt component. In the same period, the consolidated budget deficit moved from 2.3% of GDP in 1990 to 12.4% of GDP in 2001. This unsustainable path for the fiscal variables greatly increased the riskiness of the Turkish economy as observed in sovereign bond spreads of more than 10 percentage points in 2001. During this period, government finances relied mostly on the domestic credit markets and partly on central bank advances, therefore limiting the development of domestic currency financial markets and hence constraining monetary policy. After the 2001 crisis, significant reforms followed in fiscal, monetary and financial policies. During the reform process, budget deficits fell quickly below 3% and debt stock decreased below 40% as shown in Figure 1. This fiscal consolidation helped the development of financial markets and supported the operational framework for monetary policy.

Figure 1  
Public Sector Debt and Budget Balance in Turkey



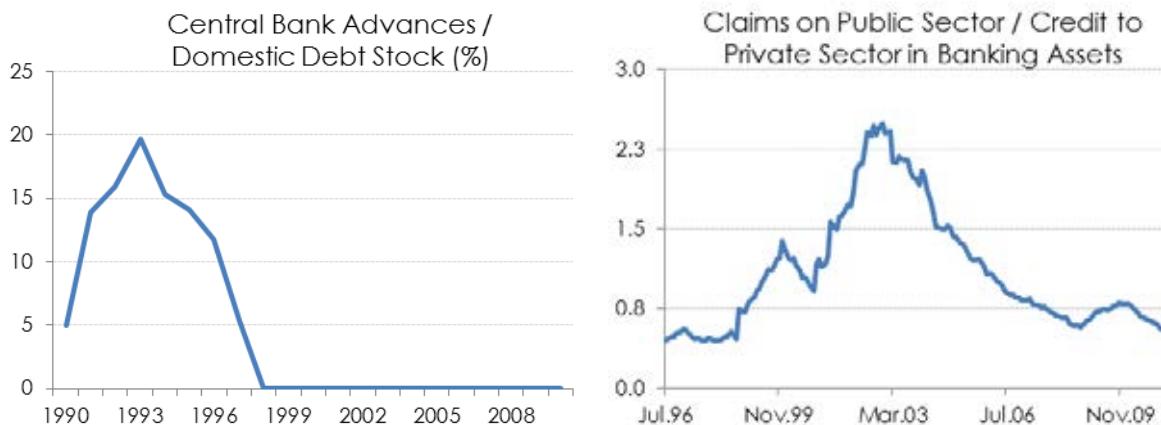
Source: Central Bank of the Republic of Turkey.

## 2.1. Fiscal dominance and constrained monetary policy in the 1990s

Turkey's deteriorating fiscal position during the 1990s was financed mainly by the domestic banking sector. If we consider the government and the private sector as the two main users of banking assets, we see in the right-hand panel of Figure 2 that the government's share of banking assets increased significantly. By mid-1996, the ratio of public sector claims to private sector credit in banking assets was around 0.45 and this ratio increased to 2.4 by mid-2002. This unprecedented increase in the government use of banking funds was a real challenge for the development of domestic financial markets in that heavy public borrowing can easily crowd out private activity in the banking sector. This moves banks away from their traditional role of credit supplier to the private sector. As a result, private agents may respond by moving to foreign currency funding, as was the case in Turkey. Another dimension of high public debt levels is that some part of this debt was financed by central bank advances. As seen in the left-hand panel of Figure 2, central bank advances increased to around 20% of domestic debt stock in 1993 before going to zero in 1998.

The side effects of fiscal deterioration showed themselves in the low level of financial development, a high degree of dollarisation, high exchange rate pass-through, and the restricted effectiveness of monetary policy. The outcome was high and volatile inflation in the 1990s. Given the low level of financial development in the 1990s (the private credit-to-GDP ratio fluctuated between 15% and 25% from 1990 to 2002), the heavy dependence of the public sector on domestic financial markets created a high level of dollarisation in both public finances and private transactions. The FX share in gross public debt, as shown in the left-hand panel of Figure 3, was close to 60% by the beginning of 2003; and the dollarisation levels for deposits and credit were around 50% from mid-1996 until end-2002, as shown in the right-hand panel of Figure 3. This high level of dollarisation manifested itself as a high level of exchange rate pass-through to domestic prices. As estimated by Kara and Öğünç (2008), the cumulative pass-through to core consumer price inflation in nine months was 48% in the February 1995–April 2001 period (Figure 4, left-hand panel).

**Figure 2**  
**Central bank advances to government and  
fiscal dominance in financial markets in Turkey**



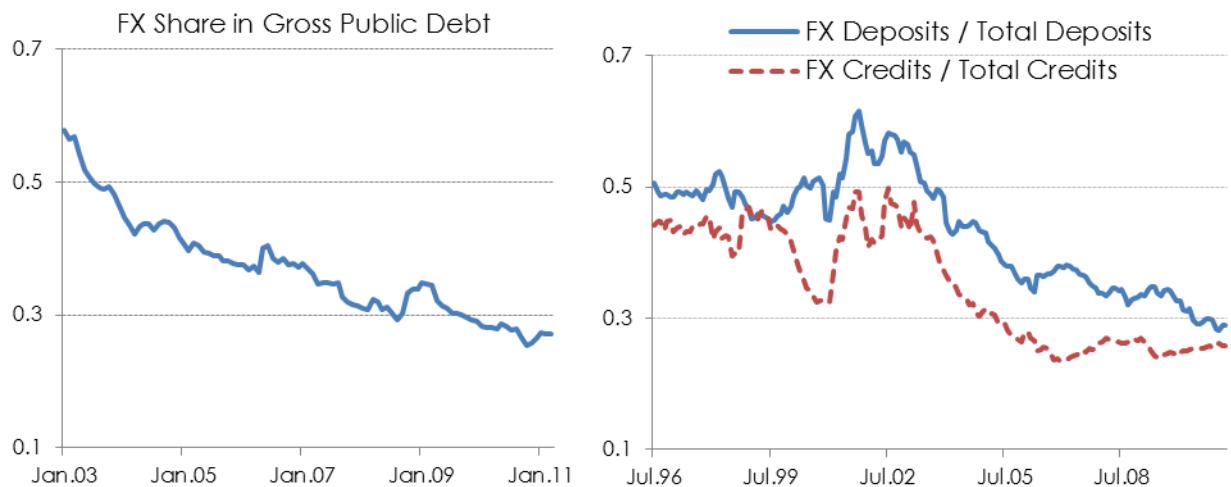
Source: Central Bank of the Republic of Turkey.

Monetary policy was significantly constrained, and in several dimensions, by the resulting fiscal dominance in financial markets, the low level of financial development and the high level of exchange rate pass-through. The underdevelopment of domestic credit markets severely hampered the effectiveness of the credit channel in demand management. Dollarisation also played a part in undermining the effectiveness of this channel. Moreover,

given the high level of dollarisation, exchange rate movements had a strong effect on inflation, and thus became the main determinant of domestic price developments. Exchange rates were largely determined by risk perceptions that were conditioned by public policy in particular and the Turkish economy in general, with the result that monetary policy had to respond mainly to changes in risk appetite and the resulting exchange rate fluctuations. Thus, monetary policy was focused mainly on containing the negative effects of underdeveloped credit markets and high currency mismatches in the domestic economy rather than on directly managing aggregate demand and containing inflation.

Turkey's twin banking and currency crisis in 2001 demonstrated how monetary policy can be tightly constrained by fiscal policy. During the crisis, public debt and the budget deficit reached record levels, aggravating risk concerns for the economy, in a similar way to that seen in the current European debt crisis. EMBI spreads for Turkey increased above 10 percentage points, and the economy experienced an output loss of more than 5%. At the same time, the Turkish lira depreciated significantly. In contrast to a conventional monetary policy during a crisis (similar to the one in developed countries where monetary policy reacts in countercyclical way by decreasing the policy rates to support the economy), monetary policy in Turkey reacted in a procyclical way and the monetary stance was tightened in 2001. This policy action was taken mainly to contain the adverse balance sheet effects coming from the large depreciation of the Turkish lira. In this way, monetary policy was significantly constrained by the imprudent fiscal policy and its consequences such as underdeveloped financial markets and a high degree of currency mismatch in the economy. In addition, fiscal policy had to tighten significantly after the crisis to improve risk perceptions towards the country. Turkey's experience is comparable with that of some heavily indebted European countries in 2011. Continued budget deficits drove public debt to very high levels, worsening risk perceptions and raising concerns about fiscal sustainability. This led to sharp increases in risk spreads. To contain this deterioration in risk perceptions, some European countries resorted to tight fiscal policies even before the end of the 2008–09 global financial crisis. In the process, monetary policy was severely constrained either by the zero lower bound or by the risk concerns that dominated financial markets.

**Figure 3**  
**Dollarisation in public debt and in financial markets in Turkey**



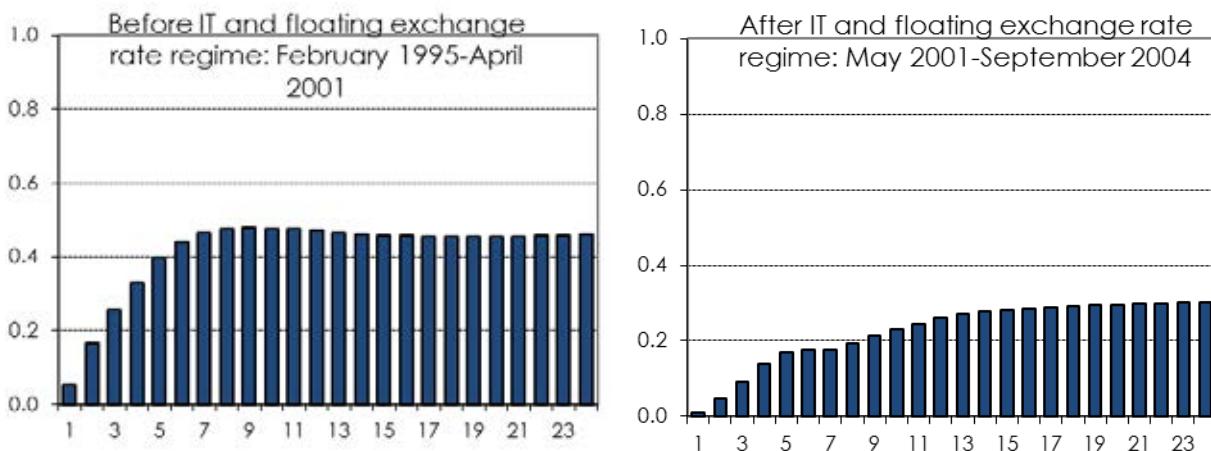
Source: Central Bank of the Republic of Turkey.

## 2.2. Reforms, fiscal consolidation and independent monetary policy in the 2000s

After the 2001 crisis, Turkey implemented significant reforms in fiscal, monetary and financial policies. On the fiscal side, significant fiscal consolidation has resulted in lower levels of public debt and smaller budget deficits as seen in Figure 1. On the financial side, there has been more prudent regulation and tighter supervision of the banking sector, firms and households. The net foreign asset positions of banks have been curbed and foreign currency borrowing by firms and households has been regulated. On the monetary policy side, central bank advances were reduced in 1998, and the central bank was granted independence in 2001.

Figure 4

### Cumulative exchange rate pass-through to core CPI inflation (in months): VAR evidence



Source: Kara, H. and F. Öðünç (2008).

The improved fiscal stance has steadily reduced the degree of fiscal dominance in financial markets. As shown in the right-hand panel of Figure 2, the ratio of public sector claims to private sector credit in banking assets fell from 2.4 in 2002 to 0.6 in the end of 2010. This development was accompanied by the rapid development of financial markets, where the private sector credit-to-GDP ratio rose from around 15% in 2001 to around 50% in 2010. In the meantime, the currency decomposition of government finance has also changed significantly. As seen in the left-hand panel of Figure 3, the share of foreign currency in gross public debt fell from 57.8% in the beginning of 2003 to 26.7% by the end of 2010. Both the reduced fiscal dominance in financial markets and the falling share of foreign currency in public debt instruments have helped the development of domestic currency financial markets, thereby strengthening monetary policy transmission. Financial market reforms have also contributed to the sound development of the banking sector. The banking sector's net foreign asset position of the banking sector has been curbed. Meanwhile, corporate foreign currency borrowing has been restricted to exporting firms and foreign currency borrowing by households has been prohibited. So that currency mismatch risks can be better hedged, the development of hedging techniques has been encouraged in the financial markets. As a result of these reforms, the level of dollarisation in credit and deposits fell from about 50% in 2000 to below 30% at the end of 2010 (Figure 3, right-hand panel).

In addition to improvements in the structural factors underlying fiscal variables, fiscal policymaking has also improved. In Table 1, we see cyclicalities as measured by the contemporaneous correlation with GDP for the main government variables. Before 2001, total government expenditures were procyclical with a correlation coefficient of 0.19 and they became countercyclical after 2001 with a correlation coefficient of -0.38. Regarding the

composition, government consumption as a ratio to GDP was countercyclical but government investment with all its subcomponents was strongly procyclical. After 2001, consumption has become more countercyclical, and all components of government investment except machinery investment have changed from procyclical to countercyclical. This movement of fiscal policy towards a more countercyclical stance has been also observed in other emerging countries as shown by Frankel et al (2011). A procyclical fiscal policy works against monetary policy. During a demand boom with inflationary pressure, monetary policy would ideally tighten so as to curb demand and ward off inflationary pressure. However, a procyclical fiscal policy puts extra demand pressure on the economy and reduces the effectiveness of monetary policy. Therefore, a change in fiscal policy from a procyclical to countercyclical stance in Turkey and in most emerging countries has been an important change in the interaction of monetary and fiscal policies.

---

**Table 1**  
**Cyclicality of public policy : contemporaneous correlations with GDP**

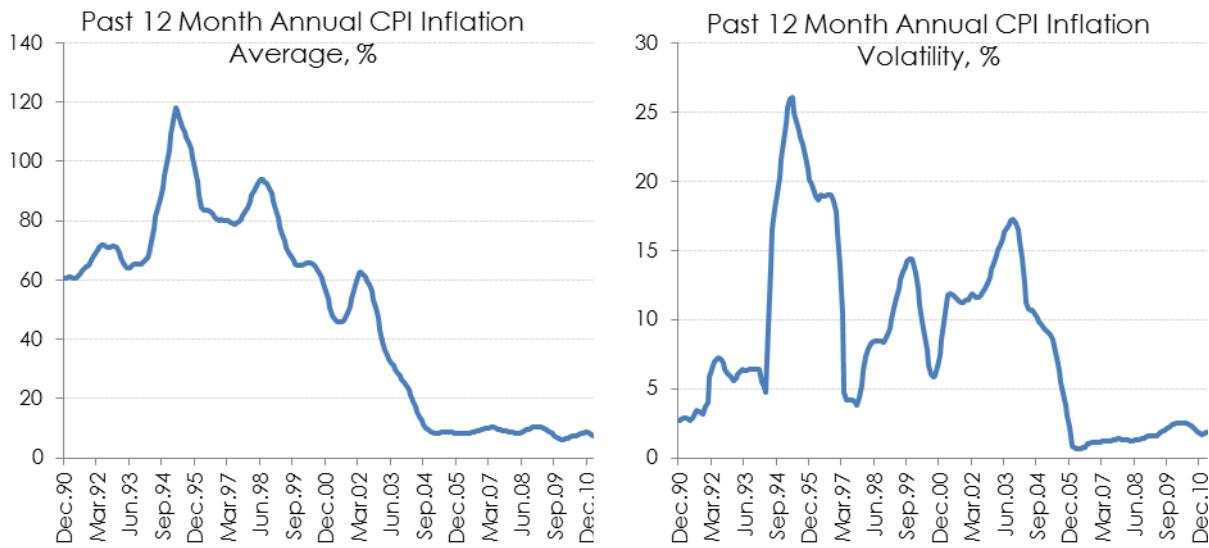
	1987q1– 2001q4	2002q1– 2007q3
Government Consumption and Investment over GDP	0.19	−0.38
Government Consumption over GDP	−0.48	−0.57
Government Consumption-Wages over GDP	−0.92	−0.90
Government Consumption-Other over GDP	0.09	−0.40
Government Investment over GDP	0.34	−0.20
Government Machinery Investment over GDP	0.41	0.20
Government Construction (Building) Investment over GDP	0.27	−0.39
Government Construction (Other Building) Investment over GDP	0.10	−0.10

Source: Central Bank of the Republic of Turkey. All series are seasonally adjusted and HP-filtered. Statistics are for cyclical components.

---

Important monetary policy reforms were also made in the 2000s. The central bank was made independent in 2001 and price stability was defined as the Bank's main responsibility. As for the exchange rate, a market-based flexible exchange rate policy was adopted to support monetary policy. In 2006, the central bank started implementing a fully fledged inflation targeting policy thereby increasing the transparency and predictability of monetary policy. Favourable fiscal consolidation and the development of the domestic currency credit markets along with policy independence significantly widened the operational space for monetary policy and improved its effectiveness. As seen in the right-hand panel of Figure 4, the exchange rate pass-through to core consumer price inflation in first nine months fell to 21% in the May 2001–September 2004 period. Thanks to a stronger credit channel and the easing of concerns about fiscal risks, monetary policy has been able to focus mainly on the Bank's main responsibility of price stability. As a result, a significant disinflation was achieved during the early 2000s. As shown in Figure 5, inflation fell from above 60% in mid-2002 to below 10% at end-2004 and stayed very stable afterwards. A similar improvement was also observed in the volatility of inflation. Moreover, the lengthening maturity of domestic public debt allowed healthier yield curves to develop, together with a stronger transmission mechanism for monetary policy.

**Figure 5**  
**Inflation and volatility in Turkey**



Source: Central Bank of the Republic of Turkey.

The global financial crisis of 2008 demonstrated, in a Turkish context, the benefits of a sound fiscal stance and an independent monetary policy. In contrast to the 2001 Turkish crisis, in which economic policies were constrained by heavy public debt and high levels of dollarisation both fiscal and monetary policies responded during the 2008 crisis in a countercyclical fashion to support the economy. Benefiting from the strong stance of fiscal policy and the relatively low level of dollarisation, monetary policymakers were able to ease significantly by cutting policy rates by more than 10 percentage points. These measures were instrumental in the fast recovery of the Turkish economy from the crisis. In the meantime, strong GDP growth and Turkey's favourable fiscal position led to a surge of volatile short-term capital flows into the Turkish economy, as seen in other emerging countries. During the crisis, an unconstrained and independent monetary policy also proved very useful in countering the ill-effects of financial volatility on the economy. The central bank has devised a new policy mix consisting of an interest rate corridor and reserve requirement ratios as the main tools. These policies have proved to be very useful in containing excessive exchange rate movements and in moderating domestic credit growth. This experience has also underlined the importance of an unconstrained monetary policy in effectively supporting the macrofinancial environment.

### 3. The global dimensions of fiscal-monetary policy interaction

Economic activity has become substantially globalised in the last two decades. During this period, the mutual integration of the advanced and developing countries has proceeded rapidly and, as a result, the policy actions of one group of countries exert a considerable effect on those of the other. One prime example of such policy spillovers was the quantitative easing policies of advanced countries during and after the global financial crisis of 2008. The resulting surge of short-term capital flows into developing countries has confronted their policymakers with substantial macroeconomic challenges.

The globalisation process also has possible implications for the interaction between fiscal and monetary policies. One such channel might come from the sustained differences in

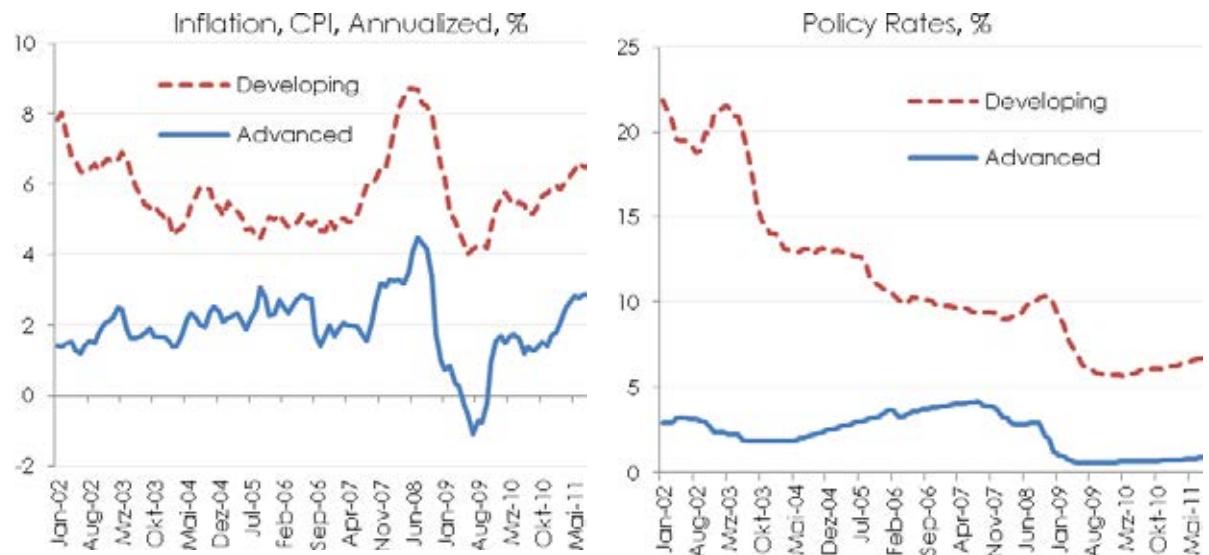
certain macro variables between advanced and emerging countries. A sustained difference in inflation and policy rates deriving from structural factors in the two country groups would have implications for real exchange rates with the result that the fiscal stance of advanced and developing countries might endogenously differ from each other as observed in the data.

### 3.1. The inflation differential between advanced and developing countries

The last decade has witnessed a persistent difference of inflation between advanced and emerging countries. As shown in the left-hand panel of Figure 6, consumer price inflation averaged around 6% in developing countries and 2% in advanced countries during the 2000s.

Figure 6

#### Inflation and policy rate differentials between advanced and developing countries



Source: IMF.

Yörüköglü (2010) discusses several structural factors that might be partially responsible for the difference in inflation rates. One factor is the differing weights of inflation baskets. The weight of food and energy items is larger and the weight of technology items is smaller in the inflation baskets of developing countries than in those of advanced countries. Food and energy goods usually have high demand elasticity and low supply elasticity. So, during sustained growth periods, the price of food and energy goods increases substantially, as observed in the 2000s. For technological goods, inflationary pressures tend to be dampened by rapid improvements in technology. Therefore, even if inflation trends at the sector-based level are very similar for different countries, differences in the weightings can cause persistently higher inflation rates in developing countries. To conceptualise the argument, assume that price indices in advanced (A) and emerging (E) countries consist of food plus energy prices (FE) and other goods prices (G) with geometric weights, ie

$$P_t^i = \left( P_{i,t}^{FE} \right)^{\alpha_i} \left( P_{i,t}^G \right)^{1-\alpha_i}, \quad i=A, E.$$

For simplicity, assume that prices of FE and G are determined worldwide and they are the same in all countries. Then, the inflation differential between countries would be

$$\rho_t^E - \rho_t^A = (\alpha_E - \alpha_A)(\rho_t^{FE} - \rho_t^G)$$

where  $\rho_t$  is the inflation at time  $t$ . This expression implies that, even though inflation rates at the sector-based levels of FE and G are the same, as long as the food and energy (FE)

goods inflation rates are higher than those of other goods ( $p_t^{FE} > p_t^G$ ) and the weight of FE is higher in emerging countries ( $a_E > a_A$ ), then emerging country inflation would be higher than in advanced countries ( $p_t^E > p_t^A$ )

Another factor underlying the inflation differential is the measurement bias in inflation. As outlined by Yörükoglu (2010), three possible biases affect the measurement of inflation, namely the quality bias, the new goods bias, and the outlet substitution bias. All these biases are expected to be larger in developing countries. For example, Bils and Klenow (2001) estimate the quality bias for the United States to be 2.2% per year. The evidence for developing countries is scarcer, but Filho and Chamon (2008) for Mexico and Brazil, and Arslan and Ceritoğlu (2011) for Turkey estimate the quality measurement bias as around 3% per year. In the process of technological catch-up, convergence and the urbanisation of developing countries, the measurement biases in inflation are expected to be higher in these countries. These structural factors may also help to explain why the inflation targets of inflation targeting developing countries are higher than those of inflation targeting advanced countries.

### **3.2. Implications for real exchange rates, monetary policy and fiscal policy**

One implication of the persistent inflation differential between advanced and developing countries is the sustained appreciation of real exchange rates.<sup>2</sup> As the left-hand panel of Figure 7 shows, in the 2000s the real exchange rates of developing countries have steadily appreciated, a process that has been only occasionally interrupted by crises. In contrast, advanced country real exchange rates have been mostly stable in this period.

Several reasons might account for the appreciation of real exchange rates in developing countries. One of the more fundamental mechanisms would be the so-called Balassa-Samuelson effect arising from the differences in technological growth between advanced and developing countries. If, in the process of convergence, technological growth happens to be larger in developing countries, then prices increase faster in developing countries and, as a result, the real exchange rate appreciates. But there might be other reasons for this appreciation. As discussed above, biases coming from the measurement of inflation would also put an appreciation pressure on the measured real exchange rates of developing countries. Also, when we look at the period between 2003 and 2008, we see that the real exchange rates of developing countries appreciated by around 30%. This period was a period of abundant global liquidity and significant capital flows to developing countries. Overall, some fundamental long-term factors and some short-term factors underlay the appreciation of developing country real exchange rates in the 2000s.

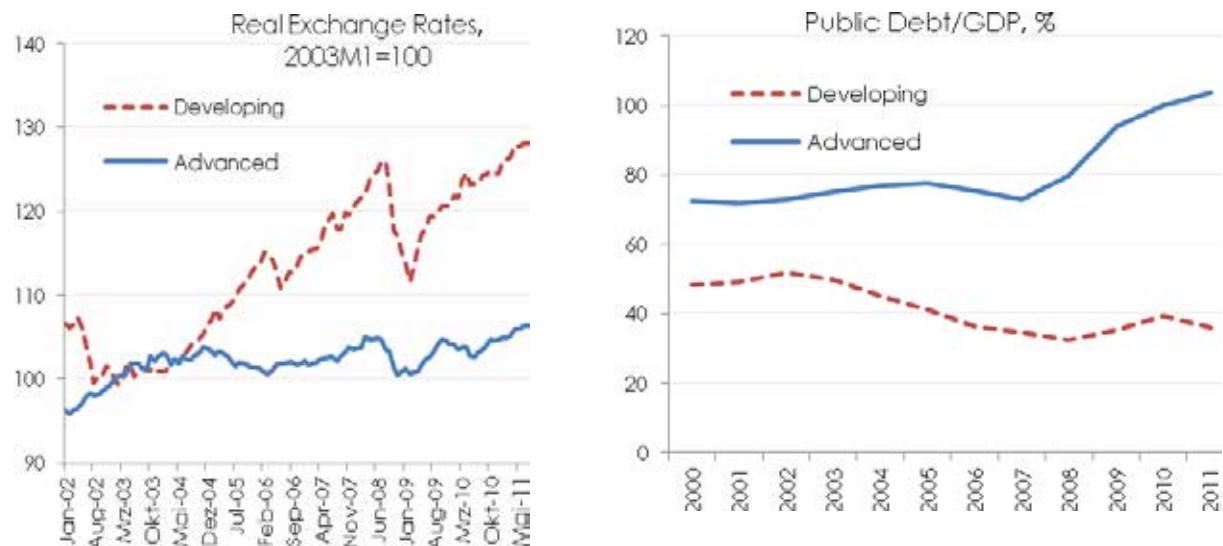
The fundamental factors that drive currency appreciation are the result of deep economic forces. Thus, policies intended to constrain the resulting appreciation would be neither effective in the long run nor in the interests of society. However, temporary factors might increase the volatility of real exchange rates and accelerate their appreciation. As real exchange rates are also an asset price, they at times react strongly to news and expectations of future variables. Such fast and volatile exchange rate movements stand in contrast to real variables that adjust slowly in response to price signals. Real exchange rates are significant as relative prices, and sound signals deriving from real exchange rate movements are vital for the proper adjustment of the economy.

---

<sup>2</sup> In this period, nominal exchange rates have been largely stable, implying that the inflation rate differential has been transformed into real exchange rate appreciation for developing countries.

Policymakers face the task of containing the adverse effects of volatile and rapidly appreciating real exchange rates. Recent research also supports the idea that policies which lean against real exchange rate misalignments are welfare-improving, as shown by Corsetti et al (2011). The question is how to design the optimal policy framework. Monetary policy and macroprudential policies could be seen as the usual policy fronts against misalignments. But for monetary policy there are some possible tradeoffs in an open economy when containing the effects of exchange rate appreciation. Usually, exchange rate appreciations are associated with capital inflows to the economy and strong domestic growth. If policy rates are lowered to slow the appreciation of the domestic currency, then monetary policy might be too loose to be appropriate for domestic inflation, output and credit conditions. Since there is already a differential between the inflation rates of advanced and developing countries, there is an implied differential for policy rates also. Therefore, monetary policy in developing countries can be thought as being restricted by the inflation differentials and the policy rates of advanced countries. Nevertheless, some innovative ways of using monetary policy remain in such circumstances. For example, it is possible to reduce the lower bound of the interest rate corridor as was done in Turkey during the first half of 2011, thereby increasing the volatility of interest rates with a view to deterring very short-term or carry trade capital flows (Central Bank of the Republic of Turkey (2011)).

**Figure 7**  
**Real exchange rates and public debt in advanced and developing countries**



Source: IMF.

Fiscal policy is another possible tool for addressing the related problems of rapidly appreciating real exchange rates and their volatility. Fiscal policy cannot usually respond as quickly as monetary policy, but a change in its direction can exert a substantial effect on real exchange rates. One way of actively using fiscal policy in response to external factors would be fiscal tightening or fiscal consolidation. Over time, the fiscal authority might reduce debt levels by cutting budget deficits. Lower budget deficits and public debt imply lower public demand for domestic output, as explained in Frankel and Razin (1992). Some part of this lower demand would fall on the non-tradable part of output and, as a result, the real exchange rate would come under downward pressure. As a measure of fiscal consolidation in developing countries, we can look at the ratio of public debt as a percent of GDP in the right-hand panel of Figure 7. This ratio fell from 52% in 2002 to 32% in 2008 for developing countries. This 20 percentage-point reduction in the gross-debt-to-GDP ratio means a significant fiscal consolidation for these developing countries, with possible effects on external factors such as the net foreign asset position and real exchange rates.

There is considerable theoretical and empirical literature about the effects of fiscal policy on real exchange rates.<sup>3</sup> On the theoretical side, both real business cycle and new Keynesian models predict that, in response to an expansionary fiscal policy shock, the real exchange rate will appreciate (Monacelli and Perotti (2010); Ravn et al (2007)). In open economy models, a rise in government spending erodes household net wealth and, as a result, consumption falls. Because of the strong risk-sharing in these models, the real exchange rate appreciates in support of the fall in consumption. On the empirical side, the evidence is rather mixed. A number of studies find that expansionary fiscal shocks lead to depreciation (Kim and Roubini (2008); Monacelli and Perotti (2010); Ravn et al (2007)), whereas other studies report an appreciation of the real exchange rate (Penati (1986); Beetsma et al (2008); Benetrix and Lane (2009)).<sup>4</sup> Evidence for the effects of fiscal policy on real exchange rates in developing countries is scarcer. For example, Agenor et al (1997) show with a structural VAR analysis that in Turkey an increase in government expenditure over GDP leads to a real appreciation of the Turkish lira. So a fiscal consolidation could also lead to a depreciation of the currency. This result is consistent with the predictions of the standard models.

One crucial element in these studies is whether these fiscal policy shocks are anticipated. Usually fiscal policy actions entail legislative and implementation lags, so that there is a news effect when a fiscal action is first announced. Ramey (2011) studies in detail the importance of the timing of government expenditure shocks for the United States and notes that it is crucial to control for the timing to get reliable results.<sup>5</sup>

This timing or anticipation explanation is also important for developing countries. For example, in Turkey, the government publishes three-year projections of fiscal variables such as revenues, expenditure, primary and general budget balances and the level of public debt. Consistent with the theoretical and empirical literature, a policy of announcing and implementing a fiscal consolidation in the coming years would put a downward pressure on the domestic currency. Therefore the strong fiscal consolidation in developing countries during the 2002–08 period (Figure 7, right-hand panel) can be seen both as a way of strengthening the fundamentals in these countries as well as the endogenous response of policymakers to the large appreciation of their currencies.<sup>6</sup> Overall, the structural differences between advanced and developing countries can create persistently higher inflation in developing countries than in developed countries. This difference can put a strong upward pressure on the currencies of developing countries. Using monetary policy to ameliorate this pressure would create tradeoffs because, in an open economy, the monetary policy of a developing country might be constrained by inflation differentials, developed country policy rates and financial stability issues. As an alternative policy aimed at relieving upward pressure on the exchange rate, developing countries can resort to fiscal consolidation as

<sup>3</sup> Hebous (2011) reviews the related theoretical and empirical literature about the effects of discretionary fiscal policy on macroeconomic variables including real exchange rates.

<sup>4</sup> This evidence is mostly for advanced countries and the evidence for developing countries is very scarce owing to limited data.

<sup>5</sup> This paper shows that, in the United States, once timing is taken into account, consumption of services increases and that of all other consumption items decreases in response to fiscal shocks. If we take these as relative demand changes for services and other goods, one might expect that prices of services (a proxy for non-tradable goods) would increase relative to prices of other goods (a proxy for tradable goods) and then the real exchange rate would appreciate.

<sup>6</sup> Another related motive might be to restrict the current account deficit in developing countries by fiscal consolidation. Usually, high appreciation periods are associated with strong growth and a rising current account deficit in developing countries. Then fiscal consolidation can be seen as a way of both reducing the appreciation pressure and containing the current account deficit (see, for example, Kim and Roubini (2008) and Kumhof and Laxton (2009)).

seen in the 2000s (Figures 6 and 7). This interplay of inflation, real exchange rates, interest rates and fiscal policy shows how fiscal-monetary policy interactions might have been globalised.

### 3.3. Fiscal policy and real exchange rates in Turkey

We undertake a simple empirical exercise to track the effects of government expenditures on real exchange rates in Turkey. In our methodology, we closely follow Ravn et al (2007) and estimate a vector autoregression model of the form:

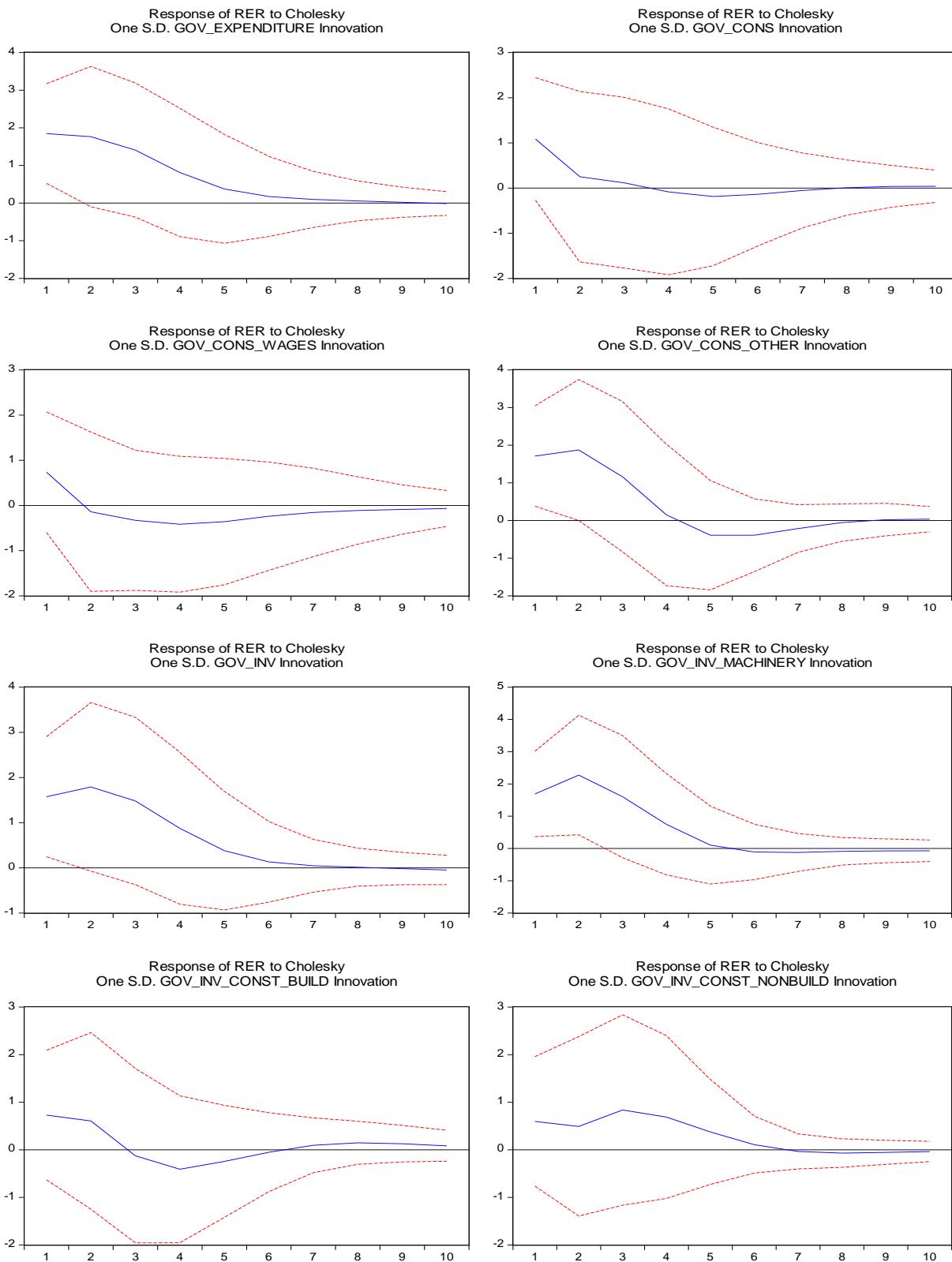
$$A \begin{bmatrix} \hat{g}_t \\ \hat{y}_t \\ \hat{c}_t \\ \widehat{nxy}_t \\ \widehat{rer}_t \end{bmatrix} = B(L) \begin{bmatrix} \hat{g}_{t-1} \\ \hat{y}_{t-1} \\ \hat{c}_{t-1} \\ \widehat{nxy}_{t-1} \\ \widehat{rer}_{t-1} \end{bmatrix} + \varepsilon_t$$

where  $\hat{g}_t$  is government expenditure (or its subcomponent) over GDP,  $\hat{y}_t$  is real GDP,  $\hat{c}_t$  is private consumption over GDP,  $\widehat{nxy}_t$  is the trade balance over GDP and  $\widehat{rer}_t$  is the consumer price index-based real exchange rate. All variables are from the Central Bank of the Republic of Turkey. We first seasonally adjust all the series and then apply an HP filter to get the cyclical components. For GDP and the real exchange rate, we take the percentage deviation from trend as the cyclical component and for other variables we take the absolute deviation from trend as the cyclical component (because they are already in the ratio to GDP form). Here an increase in the real exchange rate is defined as an appreciation of domestic currency.  $\varepsilon_t$  is the vector of disturbances and  $L$  is the lag operator.

We estimate the vector autoregression model with quarterly data from 1Q 1987 to 3Q 2007. For identification, we follow a Cholesky decomposition such that government expenditures only respond to its own innovations in the same quarter. Figure 8 presents the impulse response function of real exchange rates to one standard deviation shocks in government expenditures. We present all impulse responses for the subcomponents of government expenditures. We see that in no case does an increase in government expenditure lead to a depreciation. Moreover, in the case of total government expenditure, government consumption expenditure other than wages, government investment and government investment of machinery, we see that a spending increase leads to a significant appreciation in the currency.

With these results, we see that both a fiscal worsening (as in an increase of Turkey's government expenditure over GDP from 11.7% in Q3 1995 to 16.1% in 2Q 2000 or an increase of public debt over GDP from 32.9% in 1995 to 74.1% in 2001) or a fiscal consolidation (such as the fall in government expenditures over GPD from 16.1% in Q2 2000 to 12.3% in Q1 2007 or a decrease in public debt over GDP from 74.1% in 2001 to 39.6% in 2007) would have significant effects on real exchange rates. This relationship between fiscal policy and real exchange rates presents an extra dimension to the interaction between monetary and fiscal policies. When monetary policy faces serious trade-offs regarding the movements of currency, an active fiscal policy might provide additional operational space for monetary policy by constraining exchange rate movements.

**Figure 8**  
**Impulse response of real exchange rates (RER)**  
**to one standard deviation innovation in government expenditures**



## 4. Conclusion

Fiscal policy is an important determinant of the effectiveness of monetary policy. A strong fiscal stance can increase the effectiveness of monetary policy by promoting the development of domestic financial markets and of longer maturity yield curves, thus reinforcing the economy's risk structure and reducing structural weaknesses such as mismatches and pass-through in the economy. A weak fiscal position severely restricts the scope for monetary policy because it increases the potential for problems in the above-mentioned channels. This relationship between fiscal and monetary policy is dynamic, changing over time both at the country and the global level. The case of Turkey, like that of most other developing countries, shows how fiscal policy evolved during the 1990s within the context of a severely constraining monetary policy into a strong fiscal stance in the 2000s that greatly improved the effectiveness of monetary policy.

Another dimension of fiscal-monetary policy interaction might come from the globalisation of the world economy. Structural factors create inflation differentials between advanced and emerging countries that in turn put steady upward pressure on developing country currencies. However, monetary policies in these countries are constrained by inflation differentials, policy rates in developed countries and financial stability concerns. Hence they cannot effectively soften the appreciation pressures. This might lead to the active use of fiscal consolidation in developing countries to help lessen the appreciation pressures, therefore presenting a new dimension in fiscal-monetary policy interaction at a global level.

## References

- Agenor, P, C McDermont and M Ücer (1997): "Fiscal imbalances, capital inflows, and the real exchange rate: the case of Turkey", *European Economic Review*, 41, pp 819–25.
- Arslan, Y and E Ceritoğlu (2011): "Quality growth versus inflation in Turkey", Central Bank of the Republic of Turkey, Working Paper, no 11/21.
- Beetsma, R, N Giuliodori and F Klaassen (2008) "The effects of public spending shocks on trade balances and budget deficits in the European Union", *Journal of the European Economic Association*, 6, pp 414–23.
- Bénétrix, A and P Lane (2009): "Fiscal shocks and the real exchange rate", IIIS Discussion Paper, no 286.
- Bils, M and P Klenow (2001): "Quantifying quality growth", *American Economic Review*, 91 (4), pp 1006–30.
- Central Bank of the Republic of Turkey (2011): Inflation Report I, January.
- Corsetti, G, L Dedola and S Leduc (2011): "Demand imbalances, exchange rate misalignments and monetary policy", mimeo, University of Cambridge.
- Filho, C and M Chaman (2008): "The myth of post-reform income stagnation: evidence from Brazil and Mexico", IMF Working Paper, no 08/197.
- Frankel, J. and A Razin (1992): *Fiscal policies and the world economy*, MIT Press.
- Frankel, J, C Vegh and G Vuletin (2011): "On graduation from fiscal procyclicality", mimeo, University of Maryland.
- Hebous, S (2011): "The effects of discretionary fiscal policy on macroeconomic aggregates: a reappraisal", *Journal of Economic Surveys*, 25(4), pp 674–707.
- Kara, H and F Öğünç (2008): "Inflation targeting and exchange rate pass-through: the Turkish experience", *Emerging Markets Finance and Trade*, 44, no 6, pp 52–66.

Kim, S and N Roubini (2008): "Twin deficit or twin divergence? Fiscal policy, current account, and real exchange rate in the U.S.", *Journal of International Economics*, 74, pp 362–83.

Kumhof, M and D Laxton (2009): "Fiscal deficits and current account deficits", IMF Working Paper, 09/237.

Monacelli, T and R Perotti (2010): "Fiscal policy, the real exchange rate, and traded goods", *Economic Journal*, 120, pp 437–61.

Penati, A (1986): "Government expenditure, real exchange rate and the 'decline' of the manufacturing sector", some empirical evidence", *Economics Letters*, 21, pp 365–70.

Ramey, V (2011): "Identifying government spending shocks: it's all in the timing", *The Quarterly Journal of Economics*, 126(1), pp 1–50.

Ravn, M, S Schmitt-Grohe and M Uribe (2007): "Examining the effects of government spending shocks on consumption and the real exchange rate", NBER Working Paper, no 13328.

Yörüköglu, M (2010): "Difficulties in inflation measurement and monetary policy in emerging market economies", BIS Paper, no 49.