The Challenges of Monetary Policy in Turkey

Olcay Çulha,

Ali Çulha,

Rauf Gönenç

OECD

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development   **14-Oct-2008**
_____
                                                          English - Or. English

ECONOMICS DEPARTMENT

THE CHALLENGES OF MONETARY POLICY IN TURKEY

ECONOMIC DEPARTMENT WORKING PAPER No. 646

by
Olcay Çulha, Ali Çulha and Rauf Gönenç

All Economic Department working papers are available through the OECD website at
www.oecd.org/eco/working_papers

JT03252944

ABSTRACT/RÉSUMÉ

The challenges of monetary policy in Turkey

Monetary policy has been one of the main pillars of the post-2001 stabilisation programme. Encouraged by its success, the central bank shifted from implicit to explicit inflation targeting in 2006 and set a medium-term inflation target of 4%, applicable from end 2007. However this objective faced with two important challenges. On the one hand, inflation inertia settled in and non-tradable inflation stagnated at more than 10%, further fuelled by persistent surge in global commodity and energy prices. On the other hand, real interest rates remained high, continuing to fuel strong capital inflows and currency appreciation, and undermining the competitiveness of labour-intensive segments of the economy. Turkey is, therefore, faced with the classic dilemma of successful catching-up economies: Inflation inertia requires a tight policy while competitiveness losses appear to go beyond the absorption and adaptation capacity of large segments of the economy. This chapter argues that resolving this issue requires monetary policy to be supported by broader policies, including proactive competition policy to reduce costs and prices in services, enforcement of a credible multi-yearly spending framework to consolidate confidence in fiscal stability, and employers' and employees' commitment to anchor prices and wages more on the inflation target. Success with such policies would help shift the burden away from the central bank's interest rate as the only available instrument to increase the credibility of the inflation target.

This Working Paper relates to the 2008 *Economic Survey of Turkey* (*www.oecd.org/eco/surveys/Turkey*).

Keywords: Turkey, monetary policy, inflation target, inflation expectations, exchange rates
JEL classification: E4, E5, E42, E50, E52, E58.

*   *   *   *   *

Les défis de politique monétaire en Turquie

La politique monétaire est l'un des principaux piliers du programme de stabilisation engagé après 2001. Encouragée par ce succès, la banque centrale est passée en 2006 d'un ciblage implicite de l'inflation à un ciblage explicite, et a fixé un objectif d'inflation à moyen terme de 4%, applicable à compter de la fin de 2007. Toutefois, cet objectif s'est rapidement heurté à deux principaux écueils. D'une part, l'inertie de l'inflation a perduré et l'inflation dans les « non-tradables» a stagné à plus de 10 %. D'autre part, les taux d'intérêt réels sont restés élevés, ce qui a alimenté des entrées massives de capitaux et fait s'apprécier la monnaie, ce qui a pénalisé la compétitivité des segments de l'économie à forte intensité de main-d'œuvre. La Turquie est par conséquent confrontée au dilemme classique que connaissent les économies performantes en phase de rattrapage. L'inertie de l'inflation exige une politique monétaire restrictive, mais les pertes de compétitivité dépassent apparemment les capacités d'absorption et d'adaptation de pans entiers de l'économie. Ce document fait valoir que la politique monétaire doit être étayée par des initiatives menées dans d'autres domaines : incluant la politique de la concurrence proactive visant à réduire les coûts et les prix des services, la mise en œuvre d'un cadre de dépenses pluriannuel crédible afin de raffermir la confiance dans la stabilité budgétaire, et l'adoption par les employeurs et les salariés de l'objectif d'inflation comme point d'ancrage de leurs stratégies en matière de tarification et de salaires. La réussite de ces politiques atténuerait le poids qui s'exerce sur le taux d'intérêt directeur de la banque centrale en tant qu'instrument unique pour asseoir la crédibilité de l'objectif d'inflation.

Ce document de travail se rapporte à l'*Étude économique de la Turquie* 2008 (www.oecd.org/eco/etudes/turquie).

Mots clés : Turquie, politique monétaire, objectif d'inflation, anticipations d'inflation, taux de change.
Classification JEL : E4, E5, E42, E50, E52, E58.

TABLE OF CONTENTS

Tables

Figures

Boxes

THE CHALLENGES OF MONETARY POLICY IN TURKEY

by Olcay Çulha, Ali Çulha and Rauf Gönenç*

This paper reviews the recent achievements of Turkey's monetary policy and the challenges that it is now faced with. It outlines recommendations for reinforcing the response capacity of economic and monetary policy to these new challenges.

The outline of the paper is as follows. After a background on the chronic high inflation of the past, which was a key factor in Turkey's macroeconomic instability, policies which made possible successful monetary stabilisation since 2001 are reviewed in the second section. Then, two major challenges that monetary policy is now faced with are discussed: inflation inertia at relatively high single digit levels, and the competitiveness losses associated with strong trend real currency appreciation. The final section formulates policy recommendations.

The past history of high and chronic inflation

One of the major characteristics of the Turkish economy until the 2001 crisis was very high and persistent inflation (Figure 1). High inflation originated mainly from public sector imbalances. Large fiscal deficits funded from central bank resources, loose incomes policy raising wages and salaries above productivity levels, and the pricing policy of public utilities used as a means of raising revenues were key factors creating both demand and cost pressures. An unstable macroeconomic and political environment made it difficult to break the inflation inertia. During this period leading up to the crisis, the central bank of the Republic of Turkey (CBRT) implemented an accommodative monetary policy and had to sacrifice its price stability objective for the sake of financial stability.[1]

At the end of 1999, an ambitious exchange rate based stabilisation programme was put into effect. The programme was initially accompanied by a surge in capital inflows and it was successful in reducing inflation along with a considerable decline in interest rates and real exchange rate appreciation. However, lower interest rates and exchange rate appreciation fuelled consumption and investment, and undermined competitiveness, resulting in a large current account deficit of up to 5% of GDP. In addition, high international oil prices and the depreciation of the euro against the US dollar also contributed to the deterioration of the trade balance.[2] Besides, foreign confidence was on a knife edge due to a fragile banking sector and failed commitments on the fiscal side. Triggered by a political dispute, the stabilisation programme ended up in one of the deepest crises in Turkey's economic history in February 2001.[3]

_____

Figure 1. Inflation rates in Turkey
End-of-year annual percentage change
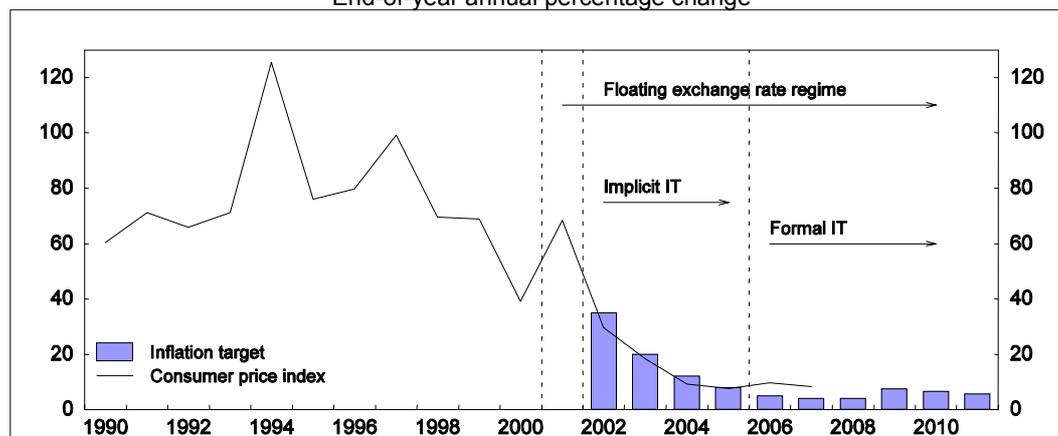
Post-2001 disinflation

After the 2001 crisis, a new programme named "Transition to a Stronger Turkish Economy" was put in place, with massive IMF support and tight fiscal targets, the introduction of a floating exchange rate regime, and structural reforms. The new Programme set fighting inflation as a main goal of economic policy. In line with this objective, the central bank was granted independence in 2001 and committed to abstain from intervening in foreign exchange markets and to focus on reducing inflation to the targeted levels. Base money growth consistent with the inflation targets and the estimated GDP growth path was to serve as a nominal anchor. This framework was formalised as *implicit inflation targeting* at the beginning of 2002, and implemented until the end of 2005.

This regime contained many of the features peculiar to full-fledged inflation targeting, such as a numerical inflation target, and the utilisation of short-term interest rates as the main policy instrument. On the other hand, it lacked published inflation forecasts, which is one of the key instruments of inflation targeting. The term "implicit" also reflected a preparation phase during which technical capability, institutional capacity and transparency of monetary policy would be enhanced. Macroeconomic preconditions such as a strong fiscal position and a stable financial environment were also to be fulfilled during this phase. In this environment and until 2005, inflation rates declined to single- digit levels, after several decades of double-digit inflation. Disinflation was also accompanied by strong growth performance. Financial sector stability was maintained, reflecting both declining risk premia and interest rates. High levels of primary fiscal surplus were also achieved and concerns over fiscal dominance faded out.[4]

Although most of the preconditions were fulfilled, the bank did not immediately shift to explicit inflation targeting. Transition to explicit inflation targeting was announced in 2006, after putting in place a comprehensive operational framework as set out in Box 1.[5]

6

Box 1. The operational framework of inflation targeting

The operational framework of monetary policy developed gradually toward full-fledged inflation targeting:

2002-05: Implicit inflation targeting
Point end-year inflation targets for CPI set jointly with the government.
Base money and inflation targets were used together as anchors to affect expectations.
Monetary policy decisions were made by the Governor at monthly meetings, with a focus on current and future inflation. The Monetary Policy Committee (MPC) played an advisory role.
Short term interest rates were the main policy instrument.

2005: Transition period
The monthly meetings of the MPC became pre-scheduled.
The analyses and rationale behind monetary policy decisions were published.

2006: Full-fledged inflation targeting
Point inflation targets were announced, with a multiyear target horizon. Targets were 5% for 2006, 4% for 2007 and 2008.
MPC became the decision authority, instead of the Governor.
An uncertainty band of ±2% around the central target was to create boundaries for an accountability mechanism (open letter to be provided to the government if boundaries are breached).
A quarterly path of inflation for 2006, consistent with the end-year targets was announced.
A quarterly Inflation Report started to be issued as the main communication tool. Inflation forecasts were published, with a 6-quarters policy horizon.

2007 to date: Innovations

Summary of the MPC minutes were to be released within 8 working days.
English translation of decisions and summary minutes started to be published on the same day as the Turkish version.
The forecast horizon was extended to 8 quarters.
The inflation target has been maintained as 4% until 2010, before a revision in June 2008 to 7½ per cent, 6½ per cent and 5½ per cent, respectively in 2009, 2010 and 2011.

Determinants of disinflation

Both consumer and producer prices decelerated sharply after 2001. Consumer inflation declined to single digit levels for the first time in thirty years in 2004, and inflation targets were undershot until 2006 (Figure 1). Turkey's institutional reforms and prudent macroeconomic policies played the key role in this stabilisation, while strong world growth, liquidity abundance in international markets and high risk appetite for emerging markets also helped. Disinflation was achieved despite both strong capital inflows and consumer confidence fuelling robust domestic demand. The key factors which permitted this sharp disinflation were:

i)   *Central bank's independence and focus on price stability*: The amendment of the central bank Law in 2001 was a cornerstone, which defined the primary objective of monetary policy as price stability. The law bestowed the Bank with operational independence and prohibited the funding of the public sector from Bank resources. Arnone *et al*. (2007) documents that Turkey made a major progress with this law in developing central bank autonomy according to international standards.[6] Effective Bank independence boosted the credibility of the new monetary regime.[7]

As in other emerging countries with an inflation target, economic agents in Turkey remain sensitive to any developments which might overshadow central bank independence. In fact, one of the factors which caused Turkey to be affected by the international turmoil

of May-June 2006 more than other emerging market countries was market concerns over the excessively long process of appointment of the new Bank Governor. These concerns were however subsequently defused, with no-surprise appointments which were endorsed by the market.

ii)   *Productivity gains and wage moderation*: An ambitious structural reform programme was introduced after the 2001 crisis. Although this process is not yet fully completed, these reforms, and the additional growth that they stimulated, fostered important productivity increases. The production process became more technology intensive and more competitive while, amid strong labour force growth and the resulting labour market slack, wage growth remained moderate. The combination of strong productivity gains and wage moderation made a considerable contribution to the success of disinflation (Figure 2).[8]

Figure 2. Productivity and real wage developments
Index 1997 = 100
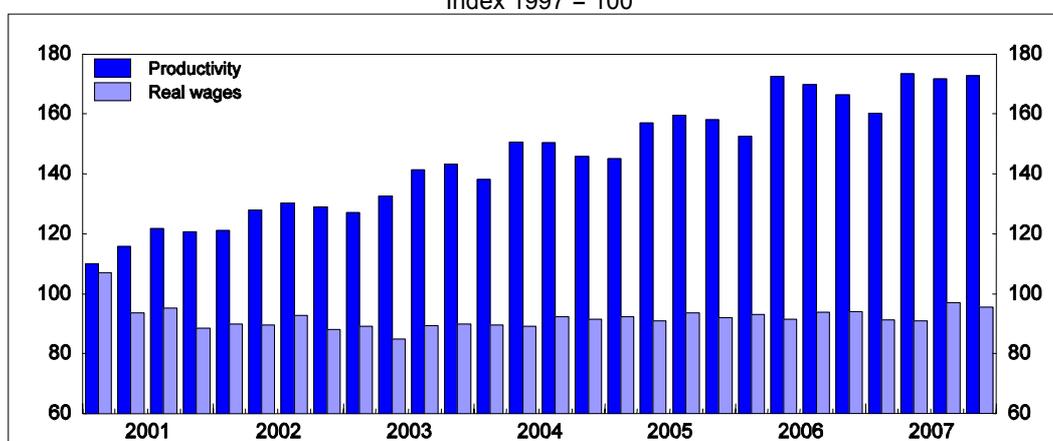
Source: Turkstat.

iii) *Fiscal consolidation and financial sector rehabilitation:* A tight and credible fiscal policy and a robust financial system are essential for successful inflation targeting. Loose fiscal policy and a fragile banking system constrain and limit the room available to the central bank in tightening monetary conditions, because this would create excessive risks of fiscal and financial strain in the economic system.[9] This *fiscal and financial prevalence* over monetary policy characterised the economic policy environment in Turkey before 2001.

Fiscal consolidation in the post-2001 period acted as an important anchor for the credibility of monetary policy. In this period debt sustainability concerns gradually declined, the net government debt/GDP ratio falling from 90% in 2001 to 45% in 2006.[10] In addition, structural reforms in banking strengthened banks' capital adequacy, and helped minimise their interest rate risk exposure, therefore making them much less vulnerable to central bank's tightening decisions.[11]

iv)   *Output gap:* Another important factor which contributed to disinflation was the rise in the economy's productive capacity. This resulted from additional capital formation and strong employment growth in industry and services. At the same time, massive entries of new working age cohorts, and exits from agriculture kept labour force reserves very high. Although GDP growth has been very strong, averaging 7.2% between 2002 and 2006, the output gap remained in negative territory during most of the period and helped contain inflationary pressures (Figure 3).

8

Figure 3. An estimation of the output gap ¹
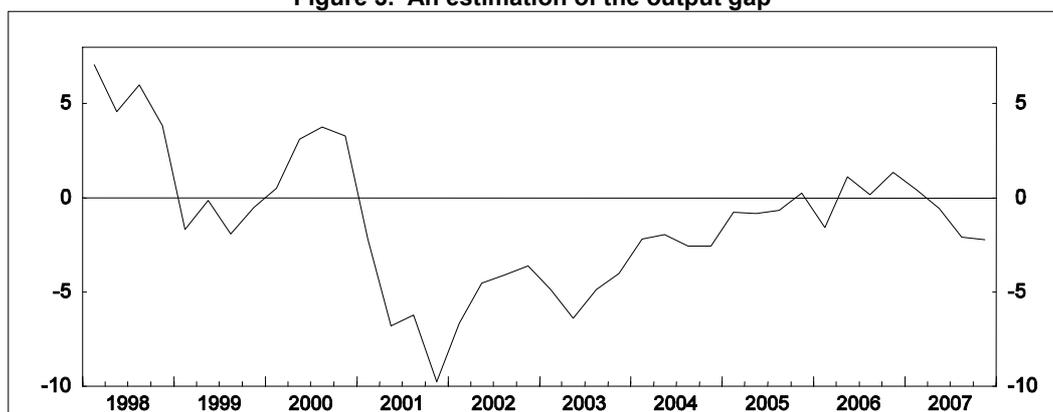
1. The OECD measure of potential output, on which the gap is based, is calculated using an Hodrick-Prescott filter with constraints. For other countries, calculations are based on a production function with smoothed capital services.
Source: OECD (2008), *OECD Economic Outlook No. 83* database.

Recent inflation inertia

Transition to full-fledged inflation targeting started under single digit inflation in 2006. Annual consumer price inflation had declined from 9.3% at the end of 2004 to 7.7% at the end of the 2005, undershooting the end year target of 8%. However, after transition to explicit inflation targeting, inflation targets which were set respectively at 5% and 4% for 2006 and 2007, were severely breached. Inflation reached respectively 9.7% and 8.4% in 2006 and 2007, and expectations remain above 9% for the end of 2008 (Table 1).

Table 1. Inflation targets and outcomes ¹
End-year – per cent

	Target	Actual	Deviation from target (percentage points)
2002	35	29.7	−5.3
2003	20	18.4	−1.6
2004	12	9.4	−2.7
2005	8	7.7	−0.3
2006	5	9.7	4.7
2007	4	8.4	4.4

Missing the target in the first two years of the new regime raised the question of whether preconditions for inflation targeting were actually met; that is, whether it had been premature to shift to formal inflation targeting.[12] Another issue was whether the selected inflation targets were set at too low levels with respect to the fundamentals of the Turkish economy.

On the first question, international experience shows that not meeting the *full* set of preconditions does not hinder the success of inflation targeting. No inflation targeters had fully met *all* preconditions before shifting to the new regime.[13] In fact, as described above, Turkey adopted a step-by-step strategy to meet preconditions.[14] Yet, the timing of transition to explicit inflation targeting was somewhat controversial, given uncertainties on the degree to which the central bank could actually influence inflation expectations. In explicit inflation targeting the central bank is in principle supposed to influence inflation expectations through its control of demand conditions. In the case

of Turkey however, as expectations are only slightly affected by cyclical factors, the adoption of explicit inflation targeting might be seen as a too ambitious step with respect to the actual leverage of the central bank on inflation expectations (see Box 3 below).

The second question is whether the level of the inflation target was optimal. In OECD countries there is a general consensus that the adequate level of inflation ("price stability") is around 2%. In emerging economies with high growth rates and productivity gains, price stability could be defined at higher levels due to various catching-up effects.[15] However, a counterargument is that productivity growth triggered by economic reforms should produce lower inflation.[16] All in all, the adoption of a flat medium-term inflation target of 4%[17] as the central bank did appears adequate in Turkey's circumstances.

The targeted *pace* of disinflation is also relevant. Setting too steep a disinflation path could result in large output loss and erosion of central bank credibility if the target is missed. On the other hand, a too flat disinflation path would also be perceived as a sign of lack of commitment and undermine credibility.[18] The critical factors in determining the desirable disinflation path are therefore the *sacrifice ratio*[19] and the *credibility risk*. As inflation was at 7.7% in Turkey at the end of 2005 the year-end inflation target of 5% for 2006 meant a commitment to reduce inflation by 2.7 percentage points in one year. Subsequently, the announcement of inflation targets of 4%[20] for 2007 and 2008 implied commitments to reduce the 2006 year-end inflation by 3.7 percentage points. These are sharp paces of disinflation, but remain below the pace of disinflation achieved between 2001-04, even if reducing inflation from a 70% level was a different challenge. The Bank adopted such a strategy to avoid another deterioration of inflation expectations.[21] As the sacrifice ratio was low in Turkey during that period,[22] the envisaged disinflation path did not look unreasonably ambitious.

However, the outcomes did not meet the targets in 2006 and 2007, and the same is expected to happen in 2008. Inflation overshot objectives by about 4½ percentage points in 2006 and 2007, and a drift of a similar magnitude is expected in 2008. Missing the targets in three consecutive years has inevitably weakened the nominal anchor role of the medium-term inflation target. Considering the persistence of supply side price pressures and the prolonged gap between inflation and the medium-term target, the central bank and the government mutually agreed to revise the inflation targets. The new targets envisage a more gradual reduction in inflation through 2009-11 (Box 2).

Box 2. Revision of inflation targets

Above target inflation outcomes and persistingly high inflation expectations undermined the anchoring role of the official inflation target. The most recent research by the central bank on the formation of inflation expectations* confirms that the weight attached by economic agents to inflation targets has been declining in the recent period. Agents have been attaching more weight to recent inflation while forming their expectations.

The central bank and the government assessed that these developments potentially increase the cost of disinflation, by increasing the sacrifice ratio associated with further disinflation. As a response they mutually agreed on 3 June 2008 to change the inflation target, in order to rebuild the credibility of the inflation targeting regime. The new target path envisages a more gradual convergence to the 4% medium-term inflation target.

Table 2. Revised inflation targets

	Before revision	After revision
2009	4	7.5
2010	4	6.5
2011	-	5.5

The authorities acknowledge that this revision carries potential risks such as leading to further deterioration of inflation expectations, undermining the credibility of the central bank, and increasing the inflation risk premia. The

---

credibility risk may become greater if the revision of the inflation target is perceived as the monetary authority shying away from responding to inflationary pressures. With this in mind the central bank started to tighten monetary policy, despite the cyclical weakness of the economy. The policy rate was increased again on 16 June 2008 by 50 basis points, reaching 16.25%.

The Turkish experience can be seen as an exceptional case, in which the revision of the inflation target may have been appropriate. Although the revision entails short-term costs, it may contribute to restore the credibility of the inflation targeting regime in the medium-term, and to reduce the costs of future disinflation. This calls for the move to be backed by supportive economic policies, such as a credible medium-term fiscal framework, pro-competition reforms to contain service price growth and productivity enhancing reforms.

* See Başkaya, Kara and Mutluer (2008).

Despite this revision of inflation targets, it cannot be concluded that the adoption of explicit inflation targeting was a failure.[23] The close examination of the three key factors which underpinned inflation inertia after the adoption of explicit inflation targeting shows that all three of them have been largely outside the realm of monetary policy:

i)   *Supply shocks:* Turkey was subject to important supply shocks, including strong increases in international oil and food prices and in domestic administered prices between 2006 and 2008. If the behaviour of *core inflation* excluding these items is considered, outcomes were closer to targets until early 2008. Core inflation excluding energy and unprocessed food but including processed food declined to and stayed at around 7% since mid-2007. An arguably more accurate measurement of core inflation, excluding also processed food, was not systematically published until May 2008 but gravitated between 4-5% between September 2007 and the end of the first quarter of 2008. However, both core inflation measures showed an upturn toward headline inflation from March-April 2008 (Figure 4).

Figure 4. Core inflation
Year-on-year percentage change
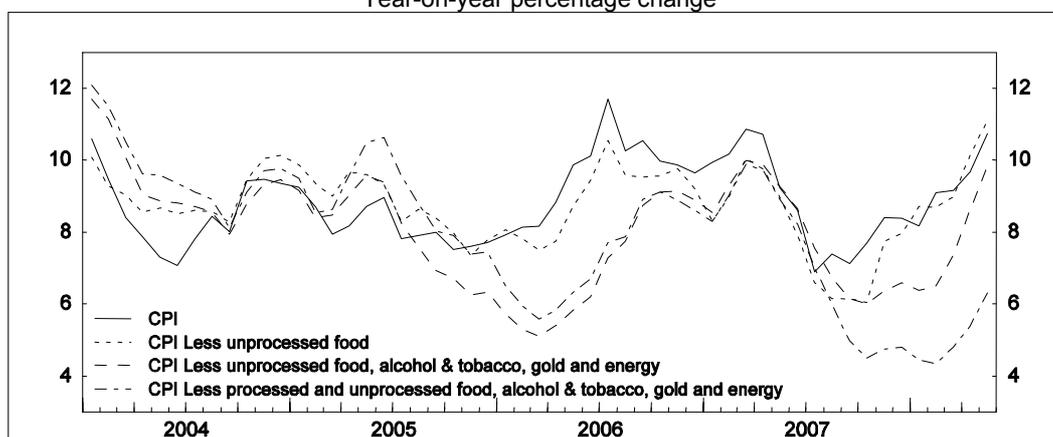
Source: Turkstat, CBRT.

The contribution of food prices to inflation was 3.1 and 3.4 points in 2006 and 2007 respectively, and is expected to reach 3.7 points in 2008, amounting to as much as 32%, 41% and 40% of headline inflation[24] (Figure 5). Food prices constitute almost one third of the CPI basket and were affected by adverse weather conditions and strong price hikes in world markets. Energy and administered price increases were also important factors. Inflation is particularly sensitive to changes in international oil prices because imported crude oil is the primary source of energy in Turkey. The increase of administered electricity prices and of special consumption taxes

on oil, natural gas and electricity also markedly lifted energy prices, and this contributed 1.6 points to inflation in 2007. Food and energy prices continue to be important drivers for inflation in 2008.

Figure 5. Components of inflation
Percentage
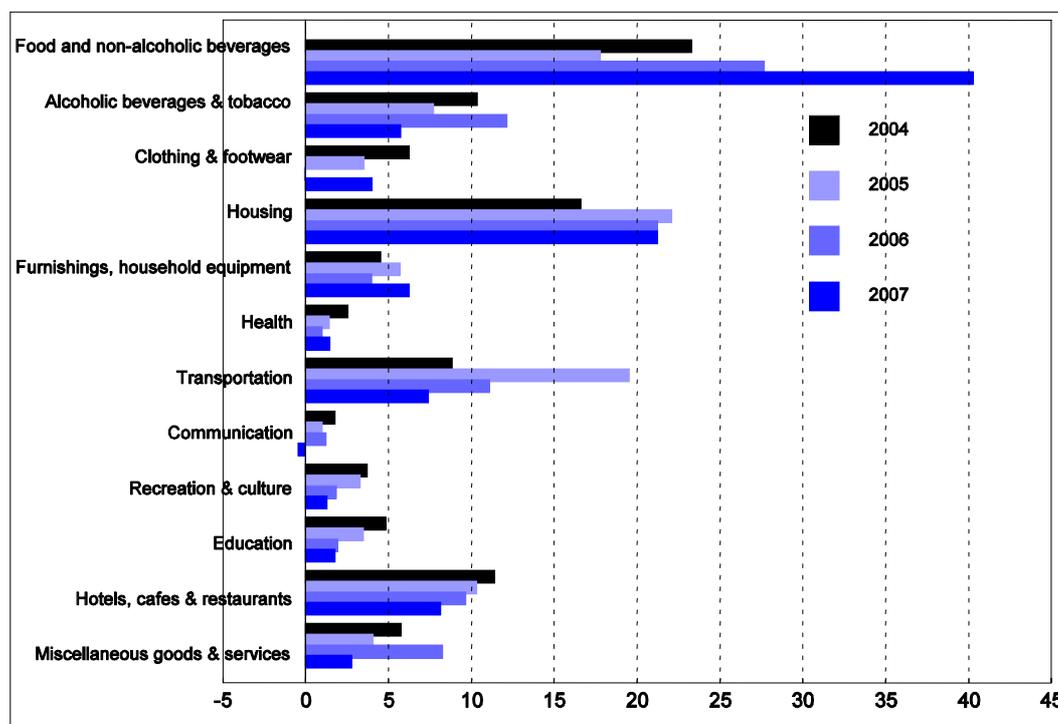
Source: Turkstat, CBRT.

ii)   *Inertia in service sector prices*: Although the deceleration of service price inflation backed disinflation between 2001 and 2003, they have stayed clearly above headline inflation since 2003. This has become one of the main sources of inflation inertia in Turkey, especially after 2005. Although service inflation started to decline from early 2007, it remains still high compared to inflation in manufactured goods. The gap between goods and service prices reversed after the strong pick-up of energy and food prices since the last quarter of 2007 but it remains positive and important once this effect is taken into account (Figure 6).

High service prices mainly result from imperfect competition, as observed in the areas of education, health, housing, transport and communication in Turkey. There is strong potential for productivity growth in these services, and for this reason assumptions of genuinely slower productivity growth in service sectors do not necessarily hold in Turkey's circumstances (so that the main factor behind the Balassa-Samuelson effect is likely to be weaker than in other catching-up economies). Stronger productivity growth and price rivalry in services can be stimulated with more pro-competitive regulatory frameworks and competition policies.

Figure 6. Goods and service prices
Year-on-year percentage change
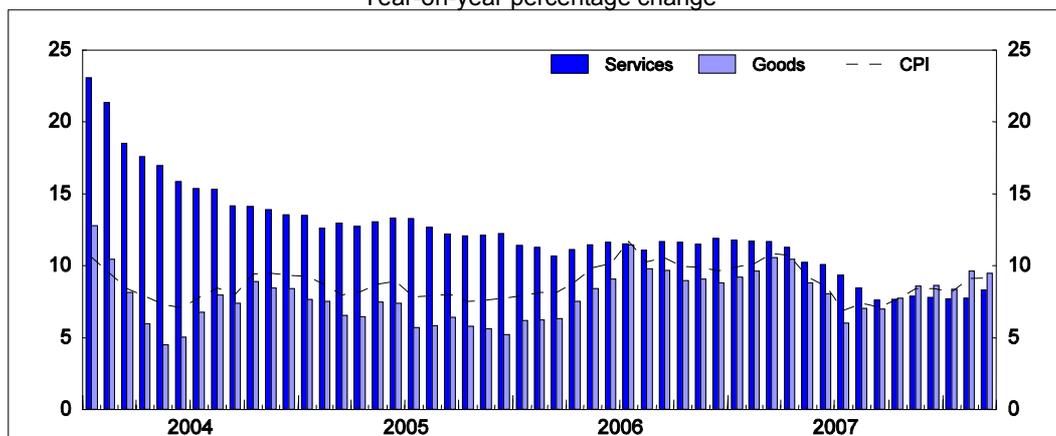
Source. Eurostat.

iii) *Exchange rate pass-through:* The pass-through from exchange rates to prices has traditionally been high in Turkey (Figure 7). Exchange rates affect inflation not only through imported goods' prices, but also by spilling-over to the prices of all tradable goods. In the recent period, the depreciation of the Turkish lira by nearly 30% during the international turmoil of May-June 2006 had an important impact on inflation. Currency appreciation through 2007 had apparently a limited effect, while a negative impact is expected from the nearly 20% depreciation in the early months of 2008. At the same time, the floating exchange rate regime appears to have moderated the passthrough effect somewhat, as market agents – notably importers and their domestic competitors – anticipate reversals in any sharp changes in exchange rates and await gradual convergence toward long-term trends, and may thus refrain from immediately and fully adjusting their prices.[25]

Trendwise, the strong real appreciation trend of the currency after 2002 made a considerable contribution to disinflation. An asymmetry in the pass-through should however be noticed, depreciation appearing to reflect more on prices in the long-term than appreciation, which may be indicating imperfect competition and opportunities for implicit collusion not to cut prices.

Figure 7. Cumulative exchange rate pass-through to headline inflation
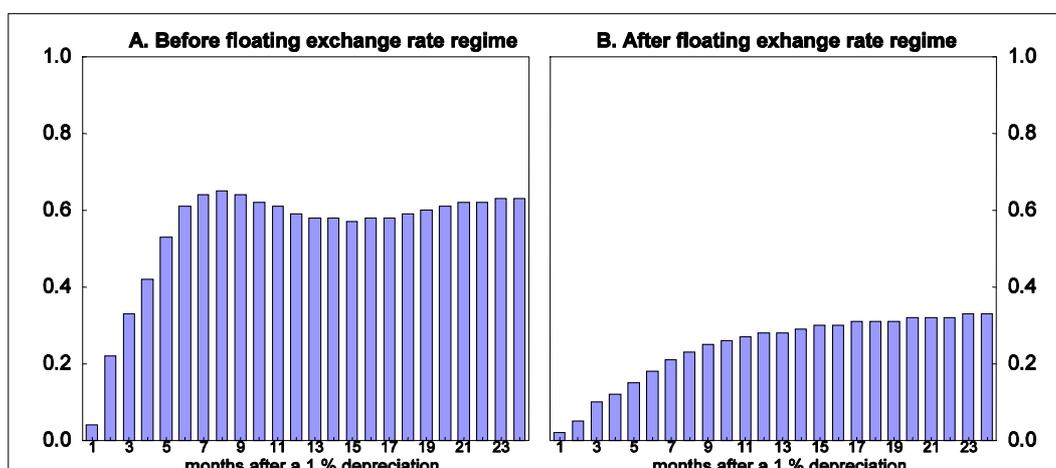
Source. Kara and Ogunç (2005).

13

In the presence of these major exogenous factors bearing on inflation outcomes, monetary authorities may continue to use core inflation measures to strengthen their communication on *core inflation*.[26] Core inflation more directly reflects domestic inflationary pressures and can be expected to be more responsive to monetary policy, as observed with its having come closer to the target bracket in the first two years of explicit inflation targeting. To the extent that the authorities can minimise feed-back pressures from headline to core inflation, headline inflation should be expected to converge toward core after exogenous shocks and their base-period effects fade out. However, minimising this feedback may be very challenging when headline inflation persists, as currently experienced in Turkey.

The social partners, including the main representative organisations of employers and employees, should be invited to recognise that the gap between headline and core inflation reflects an almost certainly durable change in Turkey's terms of trade, and in the structure of relative prices. The resulting losses of purchasing power need to be absorbed by domestic agents, and cannot be off-set by the adjustment of domestic prices and wages. Such a recognition would help contain feedback pressures from headline to core inflation, and help defuse price and wage spirals.

The structural dilemma of economic policy

The short term interest rate as the main monetary policy instrument

Short term interest rates have been used as the central bank's main policy instrument to affect demand conditions and price expectations since 2002.[27] The Bank started to set its policy rates in pre-scheduled Monetary Policy Committee meetings from 2005. The rationale of interest-rate decisions is published shortly after each meeting.

The Bank reduced its borrowing rate (the reference rate for the market) from 18% at the end of 2004 to 13.25% in April 2006, before increasing it by 425 basis points during the financial turmoil in May-June 2006. It then kept the interest rates at 17.50% until September 2007, before starting an easing stance that it discontinued in early 2008, and slightly reversed in May. Following a 50 basis points tightening the borrowing rate stood at 15.75% (and the lending rate at 19.75%) at the end of May 2008. Given the persistence of high inflation and unfavourable expectations, the Monetary Policy Committee made it clear in May that additional tightening decisions could be made in the rest of the year.

The influence of interest rate decisions can be gauged by their impact on short and long term market interest rates. The relationship between policy and market rates is affected by both the transmission mechanism and central bank credibility. A visual inspection of the relationship between the central bank's overnight borrowing rate (policy rate) and the benchmark interest rate in Istanbul Stock Exchange's Bonds and Bills Market (the market rate) shows that both rates evolved generally in parallel, but they diverged in certain periods depending on the market's risk perceptions (Figure 8). Market's risk perceptions were high during the Iraq war in early 2003, at the time of the Federal Reserve's decision to raise interest rates in early 2004, during the international turmoil in MayJune 2006, and as a result of deteriorating international financial conditions and domestic political tensions in early 2008. In contrast, markets' risk perceptions seemed surprisingly low through 2007, despite uncertainties due to dual elections and international financial fluctuations. This may have reflected markets' improved confidence in Turkey's macroeconomic fundamentals and in the stability of its basic governance framework in 2007 during that period.

Figure 8. The policy rate of the central bank and the market interest rate
Compound-per cent
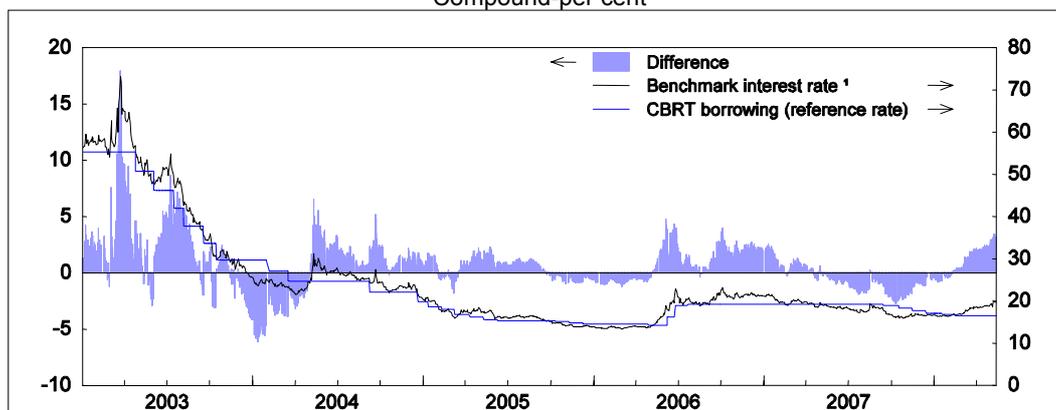
1. Benchmark interest rate is the return of the most traded securities in ISE Bond and Bills Market.
Source: CBRT, ISE.

Towards the end of 2007 however, the long end of the yield curve moved upwards and the yield curve inverted. The long end of the yield curve is driven by markets' inflation and growth expectations, whereas the short end is more directly dominated by monetary policy. This recent inversion could therefore be interpreted as a deterioration of medium and long term inflation expectations and risk perceptions by the markets. Turkey's being more clearly in the trough phase of a business cycle in 2008 than in 2007 could also have contributed to the expectation of higher future rates (Figure 9).[28]

Figure 9. Yield curves
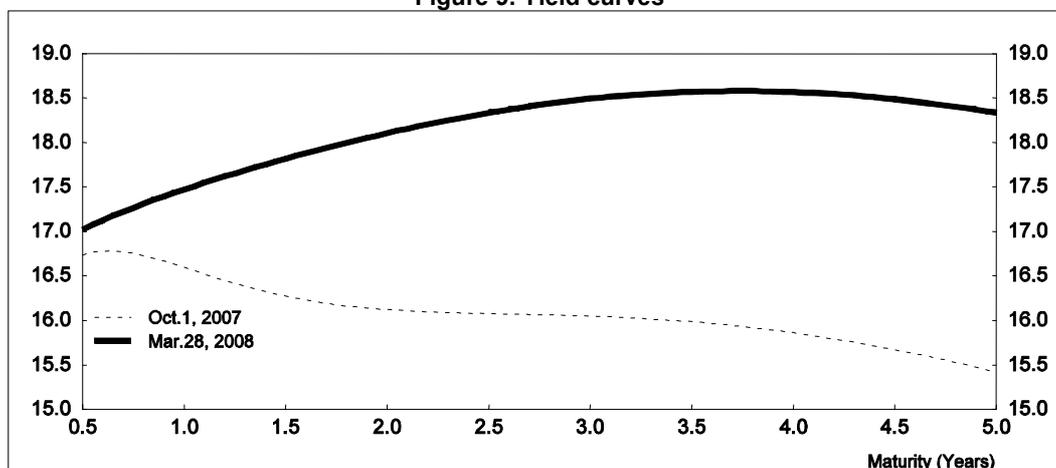
Source: CBRT.

Turkey facing the classical policy dilemma of catching-up economies

The common *dilemma* of catching-up economies has also emerged in Turkey. The dilemma arises from the normalisation and improved credibility of the macroeconomic framework, whilst policy and market interest rates remain still high in international standards. This situation attracts strong capital inflows which cause real exchange rate appreciation and resulting competitiveness losses, thereby undermining growth and employment despite strong domestic demand. This dilemma has increasingly characterised the Turkish economy in recent years and, assuming that confidenceweakening events remain temporary, it will persist as a structural challenge.

15

The central bank has been widely criticised for implementing excessively tight monetary policy and undermining the competitiveness of the Turkish economy. How should the Bank respond to such social pressures, which are at times also echoed by other policymakers?

Managing inflation expectations

Inflation expectations, after improving regularly between 2002-06, started to deteriorate due to supply shocks and unfavourable international and domestic conditions. Episodic downturns in expectations occurred also at the end of 2001 in relation with domestic political uncertainties, in the summer of 2002 due to the early election decision taken by the Parliament, and in March 2003 when the Iraq war broke out. The May-June 2006 international financial turmoil had however the most salient impact, suggesting a possible structural break in the trend improvement in inflation expectations[29] (Figure 10).

Figure 10. Inflation expectations
Year-on-year percentage change
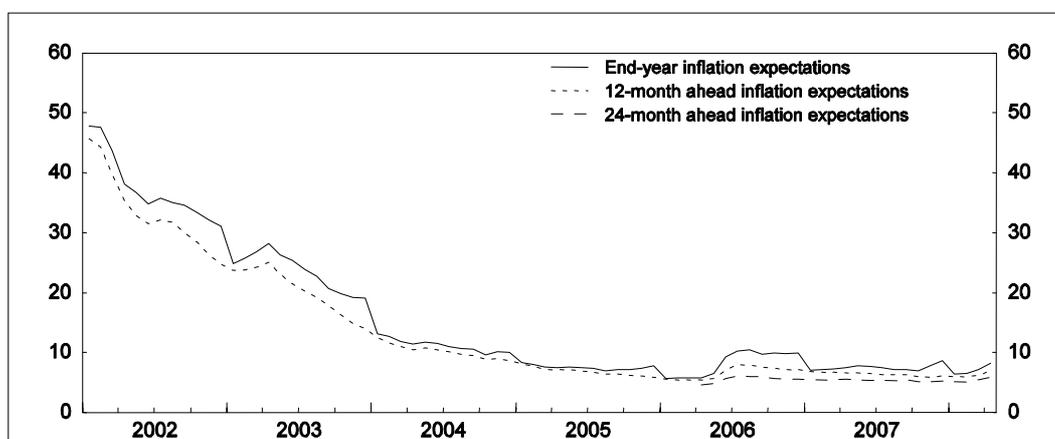
Source: CBRT.

None of these downturns in expectations were due to cyclical tensions in the economy. In fact, inflation expectations in Turkey are chiefly determined by: *i)* past and current inflation; *ii)* the fiscal stance; *iii)* the exchange rate; and *iv)* the credibility of the inflation target (see Box 3 below). Demand conditions have had a relatively limited effect on expectations in the recent period. The downward slope in inflation expectations which prevailed until June 2006 should be attributed to a large extent to a steady build up of confidence in monetary and fiscal discipline.

The credibility of the central bank is determined by the confidence of the public in its ability to reach its objectives. A widely used measure of credibility is the gap between the official inflation target and the inflation expectations of the market. In terms of this measure, the credibility of the central bank appears to have improved between 2002 and mid-2006, before declining through 2007 and early 2008, together with the decision to lower the inflation target (Figure 11).

The difference between the inflation forecast – not the target but the regularly revised forecast[30] of the central bank and market's inflation expectations is another measure of credibility. This is consistent with the Bank's goal that economic agents should rely on its short term forecast in forming their expectations. However, this measure also confirms an upward credibility gap since mid-2006: the

Figure 11. Credibility gap
Year-on-year percentage change
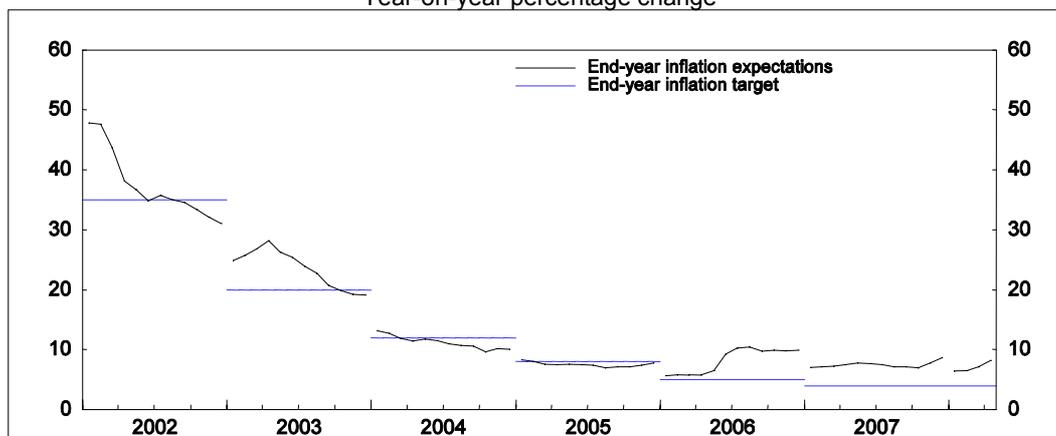
central bank and market forecasts for end-year inflation remained more apart in 2007 than in 2006, and converged more slowly through 2007 than through 2006. Diverging expectations concerning energy and food prices may have contributed to slower convergence in 2007 (Figure 12). It is true also that other inflation targeting countries suffered similar inflationary pressures in 2007 and the gap between inflation in Turkey and these other countries declined from 6 percentage points in 2006 to 3 percentage points in 2007.[31]

Figure 12. Inflation forecasts and expectations
Year-on-year percentage change
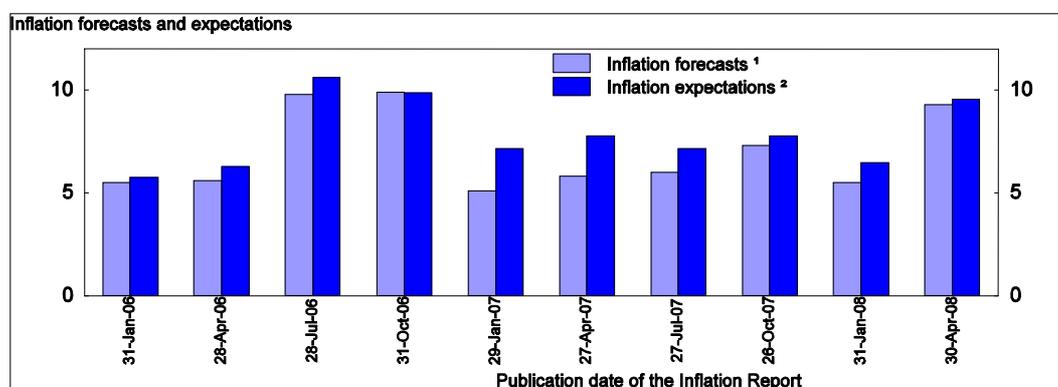
1. End-year inflation forecast.
2. The first end-year inflation expectation following the publication of Inflation Report.

Transparency is also essential for central bank credibility. First the *implicit* and then the *explicit* inflation targeting regimes represented considerable progress in monetary policy transparency in Turkey. The central bank has gradually developed its communication by publishing regular reports and press releases, which provided a better exposition of the Bank's monetary policy objectives, strategy and decision making process. This in turn increased the predictability of monetary policy actions (Figure 13). Greater transparency has been one of the main factors making inflation expectations less sensitive to past inflation (Box 3).

Fiscal discipline is also a key factor in managing inflation expectations. Indeed, fiscal policy has long been a central element shaping inflation expectations in Turkey and the recent widening of monetary policy's credibility gap might partly be related to some fiscal policy drifts through 2007. On the other hand, there are signs that domestic and international markets have somewhat tolerated this drift on the grounds that Turkey cannot be expected to entirely escape electoral cycles in fiscal policy. Still, a firmer and more predictable fiscal framework would contribute to the improvement of inflation expectations.

Since expectations are a main driver of inflation outcomes in Turkey, as analysed in Box 3, it is of considerable importance to the central bank to steer expectations in order to reach its inflation targets.[32] However, the Bank is faced with two difficulties in this task: First, inflation expectations are still largely based on past inflation outcomes, notably in the non-financial sector, and to a lesser extent in the financial sector. This implies that the Bank needs to reinforce its communication policy, in particular with the non-financial sector.[33] Secondly, the fact that inflation expectations are weakly associated with the business cycle lowers the efficacy of interest rates in shaping expectations via their influence on domestic demand, even if inflation targeting requires that the business cycle is smoothed. These factors shift part of the burden of credibility building onto instruments other than the policy interest rate (Box 3).

Figure 13. Predictability of central bank's policy decisions

Source: CBRT.

18
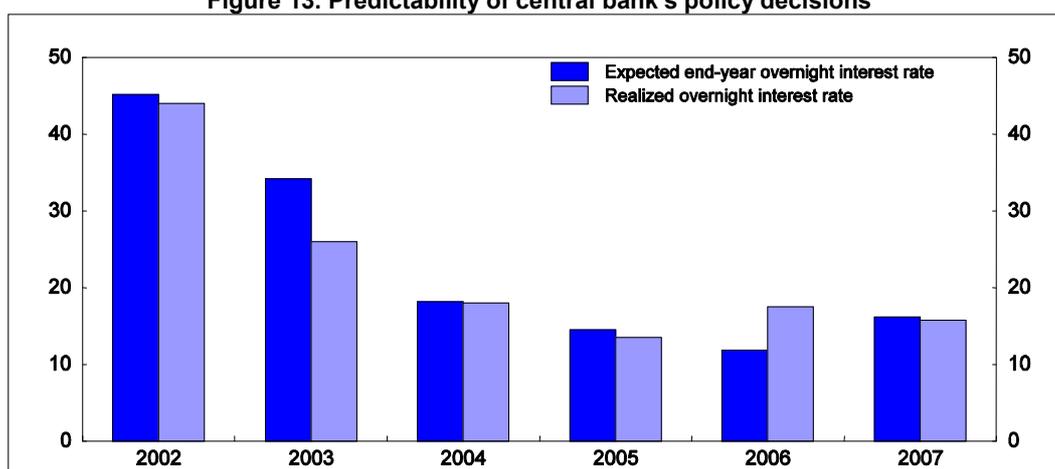
Box. 3. An empirical assessment of the dynamics of inflation expectations in Turkey

To analyse the key determinants of inflation expectations a reduced form inflation expectations equation was estimated, covering the period 2002-07. The equation builds on Cerisola and Gelos (2005), Celasun *et al.* (2004) and Minella *et al.* (2003), focusing on the relative roles of past inflation (backward-looking behaviour), the credibility of inflation targets, the real interest rate, the exchange rate, demand pressures, and the stance of fiscal policy. The model was estimated by using ordinary least squares and results are summarised below (with *t* statistics in parenthesis[1]):

$$\pi^e_t = -6.62 + 0.46 * \pi_{t-1} + 0.16 * \pi^T_t + 0.61 * r_{t-1} + 0.14 * er_{t-1} + 0.06 * ip_{t-2} + 0.41 * bb_{t-6} + u_t$$
$$\quad (-6.27) \quad (13.18) \quad\quad (3.64) \quad\quad (8.58) \quad\quad (4.50) \quad\quad (2.22) \quad\quad (2.99)$$

π^e is the 12-month ahead CPI inflation expectation (from the CBT Expectations Survey), l*t* is the annual CPI inflation rate, π^T is the end-year inflation target, *r* is the real short-term interest rate (policy rate), *er* stands for monthly percentage change in the nominal exchange rate,[2] *ip* stands for the annual percentage change in the industrial production index (as a proxy for cyclical tensions)[3] and *bb* is the government's budget deficit. All coefficients except the industrial production index are statistically significant at 1% level of (statistical) significance, and they all have the expected signs except for the real interest rate.

- The relative importance of *past inflation* in determining expectations is high, indicating the persistence of backward-looking perceptions.

- The coefficient of the *inflation target* is positive, with an estimated value of 0.16. In a fully credible inflation targeting regime the value of this coefficient would have been expected to be equal to 1.

- There seems to be a positive correlation between the real interest rates and inflation expectations. However, this seemingly positive correlation should be attributed to the synchronized co-movements of the two variables, especially during the 2002-05 period that appears to dominate the full sample period, rather than a causal relationship.

- The coefficient of the *nominal exchange rate* confirms the presence of pass-through effects.

- *Cyclical tensions* (the demand factor) has a restricted influence on inflation expectations.

- The *fiscal policy stance* is an important factor shaping expectations, even if the indicator available is imperfect in fully gauging it.

A *recursive* coefficients estimation of the model[4] helped asses the shifts in the respective weights of key variables, bringing interesting additional insights (Figure 14):

- There has been a decline in the influence of the backward-looking component of expectations during 2004, while, by contrast, the influence of the official inflation target has improved.

- Between 2005 and 2007 the credibility of the inflation target has not weakened but has not improved either.

- The impact of the nominal exchange rate on inflation expectations tended to diminish, confirming the general reading that the rate of pass-through declined in the post-2001 period.

- The impact of the business cycle seems to have remained weak.

- The influence of the fiscal stance lessened somewhat between 2004 and 2006 and remained stable in the more recent period.

- The relevance of the real interest rate slightly diminished.

Figure 14. Changing influences on expectations - recursive coefficient estimates
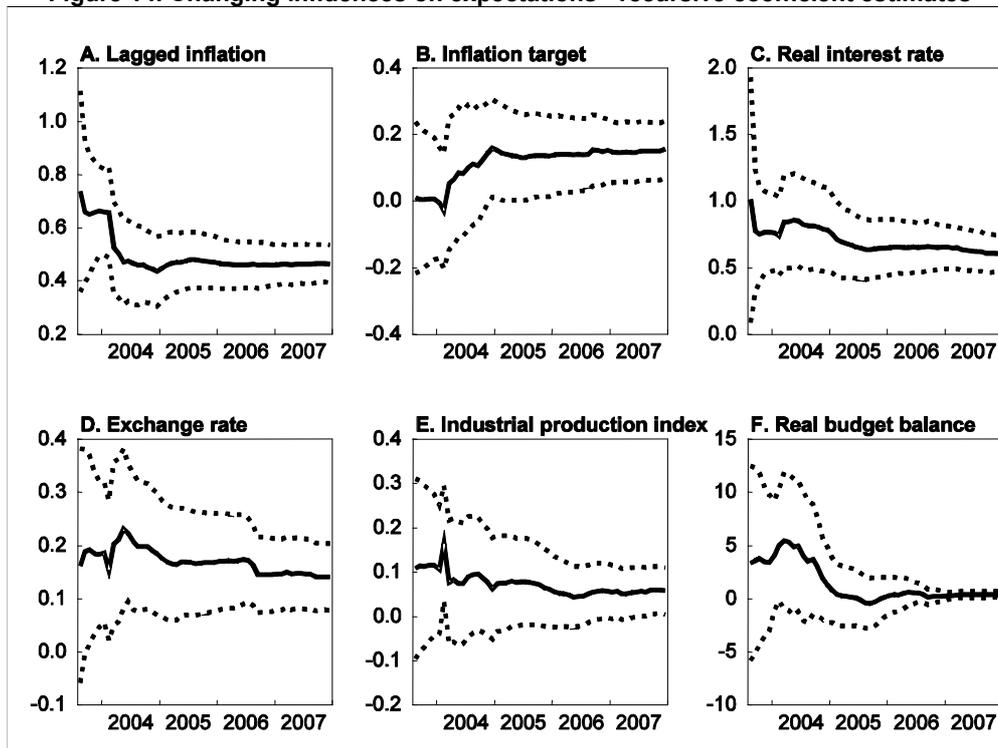
1. The variables do not seem to have unit roots except for the real interest rate and real budget balance (results are not reported). Hence, it was preferred to use the variables in levels rather than first differences. Only the real budget balance variable is in the logarithmic form.
2. A real exchange rate gap measure, which is calculated as the deviations of the real effective exchange rate from its trend (calculated by HP filter), was also employed in the equation as an explanatory variable. However, monthly changes in the nominal exchange rate appeared to perform better in the regression.
3. Some other demand gap measures, proxied by the industrial production index, private consumption expenditures and real GDP, which were calculated as deviations from their trends, were also tested in the equation, but appeared to be statistically insignificant and generally with unexpected signs. Annual changes in the industrial production index were selected as the best proxy for demand pressure.
4. Recursive coefficient estimates help assess the evolution of the impact of an explanatory variable on the dependent variable over the sample period as more sample data are added for the estimation.

Responding to trend exchange rate appreciation

In the post-2001 reform period Turkey has combined macroeconomic stability, strong growth and sharp disinflation. The central bank maintained a tight policy stance with a high real interest rate. In this attractive environment for capital inflows, which were also furthered by high international appetite for emerging market assets, international funds poured in Turkey.

Net capital inflows soared especially after 2004 and reached 10% of GDP in the first half of 2007 before setting at 8% at the end of the year. Their composition has also changed (Figure 15). The share of FDI and long term capital reached more than 80% of the total in the first half of 2007, more than offsetting the outflows observed in 2006 because of international turbulence. Foreign direct investments (FDI) reached USD 20 billion in 2007, up from USD 9 billion for the whole year of 2005. As a result, the foreign reserves held at the central bank rose to USD 73.3 billion in 2007 (11% of GDP).[34]

Figure 15. Capital inflows
Billion USD
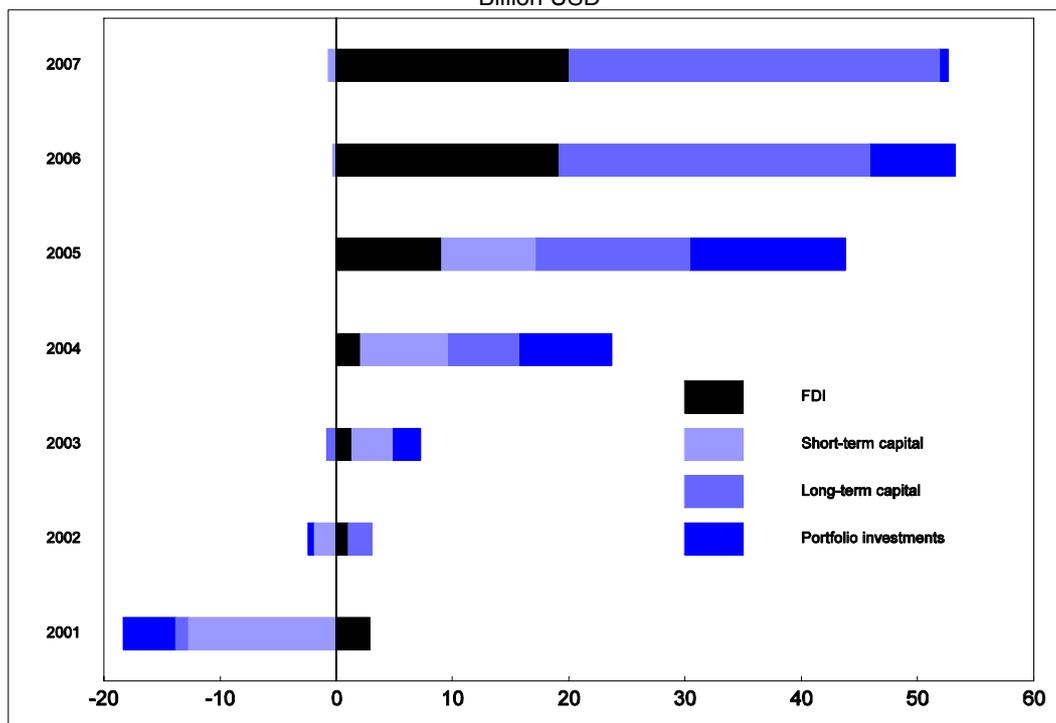
One effect of this capital surge has been strong real exchange rate appreciation (Figures 16 and 17). The real exchange rate has appreciated trendwise since mid-2002, despite sporadic, short lived reversals related to international developments at the end of 2003, in early 2004, and in May-June 2006. The duration of the early 2008 depreciation is still unknown. The real exchange rate reached its highest level at the end of 2007, when it was shaped by the *addition* of a large inflation differential with trade partners and straight nominal appreciation. The nominal appreciation channel increased competitiveness challenges for the economy because all enterprises faced the same price pressures, while the effects on the real appreciation from the inflation differential side permit a larger variety of relative price adjustments. International comparisons confirm the culmination of these real exchange rate pressures in Turkey through 2007 (Figure 16).

Figure 16. Different measurements of real exchange rates
Index, 2002 = 100
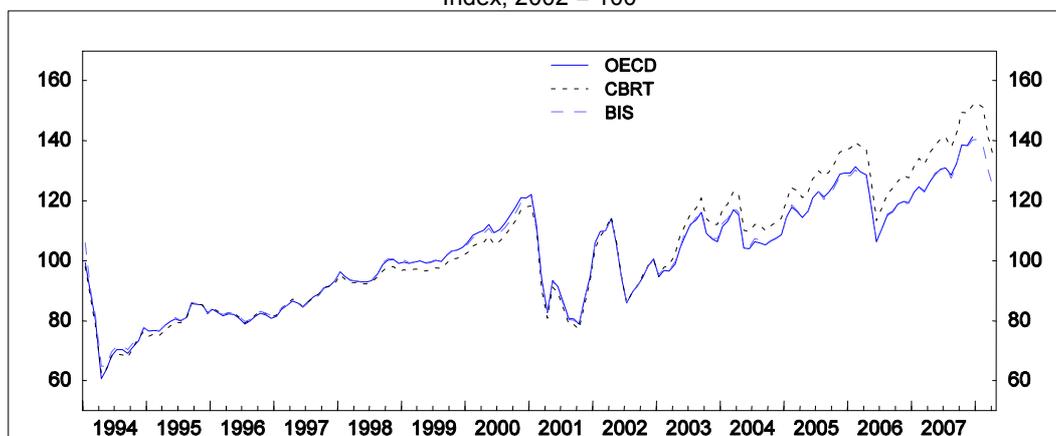
Figure 17. Real exchange rates in selected countries
ULC based, 2002 = 100
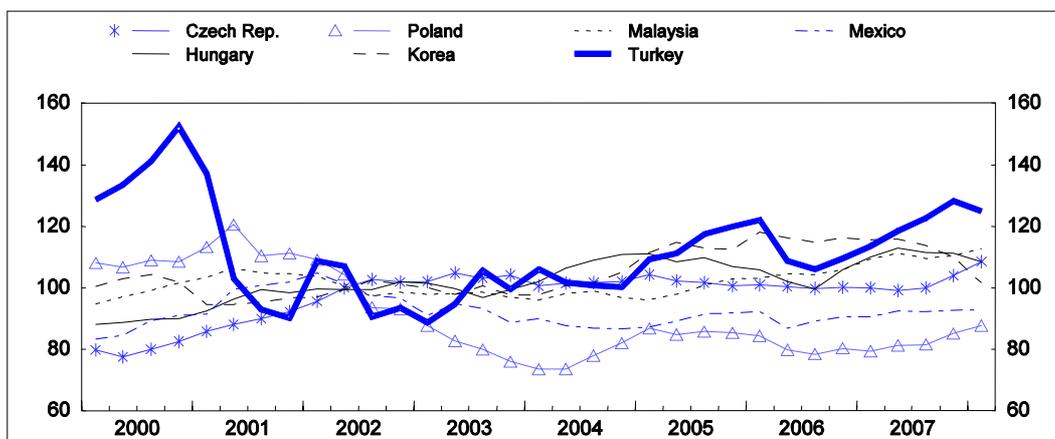
Source: OECD (2008), *OECD Economic Outlook No. 83* database.

While the exceptional pace of real appreciation was obvious, determining whether the lira was truly overvalued in 2007 and, if so, to what extent is not easy. *A priori*, the lira's value appears to have been above its equilibrium level on that year given the rapid increase in the trade deficit. The analysis in Box 3 seems to confirm that the real effective exchange rate has remained generally overvalued since mid-2003 (Box 4).

Box 4. How overvalued was the Turkish lira in the period up to 2007?

For a tentative estimation of real exchange rate misalignment, a behavioural equilibrium exchange rate (BEER) model was estimated for the period 1995-2007. Following Clark and MacDonald (1998), the real exchange rate was expressed as an outcome of five fundamental variables:

$$RER = f(RIR, TOT, TNT, NFA, DEBT)$$

RER = the *real effective exchange rate*;[1] RIR= the *real interest rate differential*;[2] TOT= the *terms of trade*;[3] TNT= the *relative price of non-traded to traded goods*;[4] NFA= *net foreign assets*;[5] and DEBT= the *total public debt stock*.[6]

A co-integration equation was estimated as:[7]

$$RER = -0.001 RIRD + 0.391 TOT + 0.475 TNT + 0.023 NFA + 0.014 DEBT$$
$$\quad\;\; (0.001) \qquad\quad (0.232) \qquad (0.241) \qquad (0.003) \qquad (0.001)$$

Between 1995-2007, stronger terms of trade and higher relative prices of non-traded goods were correlated with real currency appreciation. In contrast, higher interest rate differentials were correlated with real depreciation (risk premia prevailed over interest rate parity). A higher public debt ratio went together with appreciation (demand and price stimulation effects from fiscal deficits appeared to prevail over risk perceptions).

An *equilibrium* rate of appreciation was estimated through the period[8] and the *misalignment* of the exchange rate was measured as the difference between actual and fitted values (Figure 18).

Figure 18. An estimation of the overvaluation of the real exchange rate until 2007
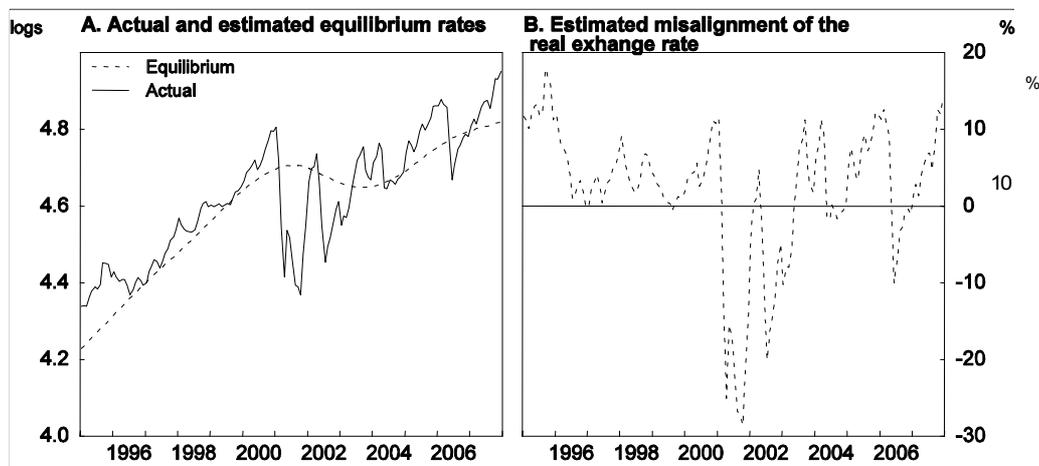
Source: Culha *et al*.(2008), forthcoming)

These estimates imply that, according to the behavioural model used, the Turkish lira remained generally overvalued between 1995 and the crisis at the end of 2000. However, these misalignments were generally of short duration. The Lira then depreciated sharply in February 2001, at the time of the crisis. The real exchange rate remained undervalued for one year before recovering to its equilibrium level by early 2002. It plunged again in mid-2002 when domestic political tensions augmented and early elections were announced. After market confidence was restored following the November 2002 elections, a positive gap started to form again. Between 2003 and 2007 the currency was generally overvalued except in the second half of 2004 when the Federal Reserve started to raise policy rates, and in May-June 2006 after the international turmoil. An upward An upward misalignment followed with the real exchange rate reaching 14% above its expected value by the end of 2007.

Calculated as the ratio of Turkey's consumer price index (CPI) to its producer price index (PPI), divided by the trade-weighted relative price ratio of Turkey's main trading partners, in log form. This variable is expected to be positively associated with real exchange rate appreciation, because when domestic political tensions augmented and early elections were announced. After market confidence was restored following the November 2002

elections, a positive gap started to form again. Between 2003 and 2007 the currency was generally overvalued except in the second half of 2004 when the Federal Reserve started to raise policy rates, and in May-June 2006 after the international turmoil. An upward misalignment followed with the real exchange rate reaching 14% above its expected value by the end of 2007.

_____

1.   The real effective exchange rate based on CPI, as calculated by the OECD, in log form.
2.   Calculated as the difference between Turkey's (central bank policy rate) and US's (FED funds rate), in real terms. The expected effect of this variable on the real exchange rate is ambiguous. According to the uncovered interest rate parity (UIP) hypothesis, the currency with the higher interest rate should depreciate, to eliminate any arbitrage opportunities. On the other hand, a high interest rate may stimulate capital inflows, fostering the appreciation of the currency.
3.   Calculated as the ratio of Turkey's terms of trade divided by the trade-weighted average of the terms of trade of Turkey's main trading partners. A rise in TOT is expected to generate a positive effect on the real exchange rate, by shifting production towards tradable goods, increasing wages in the tradable sector and then leading to a rise in overall price level and therefore an appreciation in the real exchange rate. For the measurement of TOT Germany, Italy, UK, France, USA, and Spain have been considered as Turkey's main trading partners.
4.   any productivity differential between tradable and non-tradable activities creates higher inflation. This is also known as the Balassa-Samuelson effect.
5.   Calculated as the ratio of the difference between total foreign assets and total foreign liabilities to GDP. An increase in NFA is expected to increase the real exchange rate, as net capital inflows increase domestic currency demand.
6.   Expressed as a ratio to GDP. As a risk indicator, the sign of DEBT is expected to be negative: more public debt could increase the risk premium and may lead to a real exchange rate depreciation. On the other hand, if additional debt finances more government expenditure on non-tradables, this may lead to a rise in the general price level and thus foster real exchange rate appreciation.
7.   The Johansen co-integration method was used on a monthly basis, covering the period 1995-2007. An unrestricted vector auto-regression (VAR) was estimated, with three lags of the six variables, according to the Schwarz information criterion, and including a dummy variable for the 2001 crisis. The cointegration test results point to the existence of one cointegrating equation on the basis of trace and maximum eigenvalue statistics at the 1% significance level. NFA and DEBT are statistically significant at the 1% level, while TOT and TNT are significant at the 5% level. RIRD appears to be statistically insignificant. Standard errors are in parenthesis.
8.   Explanatory variables were smoothed by using a Hodrick-Prescott filter and expected (fitted) values were obtained by multiplying these smoothed variables by their coefficients from the co-integration equation.

The strong real exchange rate appreciation in 2007 was clearly detrimental to competitiveness, even if it helped with disinflation. The trade-exposed sector showed a remarkable ease of adjustment in the early phases of appreciation, but pressures became too strong through 2007.[i]

Policy responses to such adverse effects of capital inflows have long been discussed in the literature. The experience of other emerging countries show that conventional measures like foreign exchange interventions and sterilisations, or capital controls, generally do not prove sufficient or sustainable (see Annex 1). Turkey had a large scale *de facto* foreign currency purchase and sterilisation programme in the 2000s, as part of a strategy to build significant foreign reserves. Additional and more occasional foreign exchange operations carried out until mid-2006 to smooth out excessive volatility could also be seen as an effort to alleviate some of the most abrupt pressures (Figure 19). Neither of these interventions slowed down trend real currency appreciation despite, in addition, the decline of interest rates until the international financial turmoil in May-June 2006. Absent shocks, upward pressures on the real exchange rate appear as a structural pressure bearing on the Turkish economy, as a combined result of these capital inflows, and the consequences of catching-up on domestic wages and prices. Both *interest rate-sensitive* and *non-interest rate sensitive* inflows are expected to remain strong in the medium-term, as confidence improves and risk premia fall. So long as strong fundamentals and credible economic policies continue to attract capital inflows, this tension will be here to last.

Figure 19. Central bank's foreign exchange interventions and purchase auctions
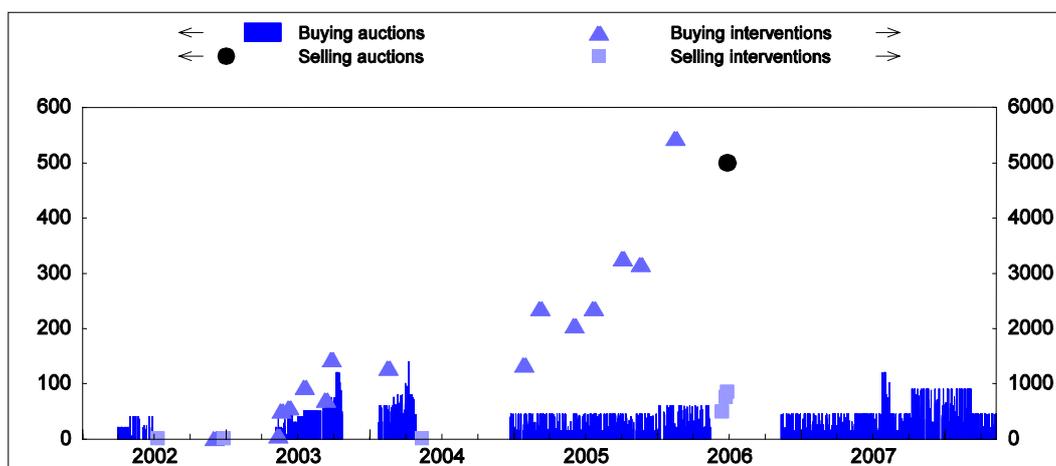
Turkey needs to mobilise additional policy instruments to face this endemic challenge - irrespective of short-term disturbances on exchange rates. Strong collective and structural action would help face the challenge in the medium-term. Box 4 illustrates the potential role of social and political co-operation in meeting similar external pressures on competitiveness of middle-income countries when exchange-rate depreciations are not an available or reliable adjustment channel (Box 5).

Monetary policy needs to be supported by an environment giving it more freedom of action. Rigorous fiscal policy remains important for permitting additional interest rate reductions by the central bank. At the same time, if transition to a lower primary surplus is successfully achieved by taking full account of the structural needs and the cyclical situation of the economy, this should not undermine disinflation – so long as the inflation target is adequately supported by other credibility-enhancing measures. The development and implementation of such measures call for stronger support by social partners, as confirmed by the experience of other small open economies.

Box 5. The role of social dialogue in backing macroeconomic and monetary objectives

Reducing inflation to stable levels without sacrificing economic growth and employment has long been a challenge for middle-income countries. Tight fiscal policy, and income policies based on wage and price containment have been typical suggestions to keep inflationary pressures low and preserve competitiveness. In a longer term perspective, labour market flexibility and product market reforms to increase productivity and price competition in the business sector have also been emphasised.

Country experiences show that successful achievement of disinflation and macroeconomic stability depends not only on policies implemented but also on social support. Social support has been at times formalised in explicit agreements between social partners, as in Ireland.

The Irish economy was confronted with slow economic growth, high unemployment and fiscal imbalances until late 1980s. Under these unfavourable circumstances, the social partners agreed to cooperate through a "Strategy for Recovery" in 1986, extended with a "Social Partnership Agreement" in 1987. These agreements were subsequently renewed for successive three-yearly periods.1

These collaborative programmes were based, principally, on wage moderation and tax reductions. There was agreement between parties that wage increases were to remain below productivity gains, and the difference would be compensated by tax reductions. Competitiveness would be preserved, macroeconomic strength maintained, inflation controlled and public finances improved largely through the higher resulting growth.

The Irish economy took off in the 1990s: productivity and competitiveness soared, and strong economic growth

---

followed. There were certainly other factors behind Ireland's achievements as well, but social partnership agreements played an important role in moderating inflation, preserving competitiveness and sustaining macroeconomic performance.

Blanchard (2006) analysed the contrasting experience of another middle-income EU accession country: Portugal. [2] A main difference between Ireland and Portugal concerned their wage policies. In Portugal, the boom after the participation in the European Exchange-Rate Mechanism initially reduced unemployment. Wage growth then increased above productivity growth, causing a sharp increase in unit labour costs. The impossibility of exchange-rate adjustment locked-in Portugal into a durably weak competitive position, which persisted in the euro area. How can Portugal restore its competitiveness today? Blanchard invokes three avenues: i) Portugal can allow the economy to adjust itself, and bear high unemployment rates until competitiveness is re-established. Such a "competitive disinflation" process would however be long and politically demanding; ii) productivity growth can be actively stimulated by public policies, which would also take time; and iii) nominal wages could be decreased, but this would be politically, legally, and psychologically very demanding.

---

1. Program for National Recovery for 1988-90, Programme for Economic and Social Progress for 1991-93, Programme for Competitiveness and Work for 1994-96, Partnership 2000 for 1997-99, Programme for Prosperity and Fairness for 2000-02, Sustaining Progress for 2003-05, Towards 2016 for 2006-08.
2. Blanchard, O. (2006), "Adjustment within the euro: the difficult case of Portugal", *MIT Department of Economics Working Paper*, No. 06-04.

Policy recommendations

Box 6 summarises the policy recommendations of this paper.

Box 6. Recommendations for a comprehensive monetary policy strategy

Reinforce communication

In the face of large and widened gaps between the inflation target and outcomes and expectations, reinforce communication, emphasising the role of the recent supply shocks.

Stress the evolution of core inflation (excluding both unprocessed and processed food) as a revealing indicator of genuine domestic inflationary pressures.

Highlight core inflation's having entered the target bracket since August 2007 as an achievement of inflation targeting. At the same time, acknowledge the pick-up of core inflation toward headline inflation as a negative and undesirable development.

Continue to emphasise headline inflation as the main nominal anchor in the economy and the main target of monetary policy.

Consolidate the inflation targeting framework

Strengthen the role of inflation forecasts in the inflation targeting framework and develop the required technical infrastructure.

Make central bank's inflation forecasts the most technically credible and accurate forecasts available, and make them a reliable anchor even in the presence of large deviations from inflation targets.

Support efforts to increase the freedom of action of inflation targeting

The central bank should explicitly support efforts to introduce a robust medium-term budget framework and spending rule. The transition to the new fiscal framework should be monitored closely and reported about in the Inflation Report.

Monitor domestic price pressures in services such as housing, retail trade (including for unprocessed and

---

processed food), transportation and energy, and report about them in Inflation Reports. The authorities should strengthen regulatory reforms and competition policies in these areas in support of monetary policy.

Cultivate social partners' backing of disinflation policy through their commitment to the inflation target as a benchmark for price and wage determination.

The social partners should also be invited to recognise that if Turkey's terms of trade deteriorate, the resulting decline of purchasing power has to be absorbed by domestic agents. This recognition could help contain feedback pressures from headline to core inflation and contribute to alleviate price and wage spirals.

Notes

1. A literature survey on the causes of inflation in Turkey is found in Kibritcioglu (2002).

2. The majority of Turkish exports are denominated in euros and the majority of imports in US dollars.

3. See OECD (2002) for an analysis of the crisis in 2001.

4. See CBRT (2004), CBRT (2005) and Serdengecti (2006).

5. With the introduction of full-fledged inflation targeting in 2006, base money lost its role of additional nominal anchor for inflation targets. Accordingly, performance criteria of IMF program on base money was replaced with the "inflation consultation" criteria (see CBRT, 2005). During this period, the central bank defined its exchange rate policy as follows: "Under the floating exchange rate regime, exchange rates are determined by demand and supply conditions in foreign exchange markets and the Bank does not target any level of exchange rates. However, the Bank may intervene to smooth out excessive short-run exchange rate volatility in both directions. In addition, the Bank can conduct foreign exchange purchase auctions to improve its international reserve position". Daily purchase auctions have been held continuously, except for temporary suspensions. Officially, the central bank has not intervened directly in the exchange rate market since June 2006. Still, reserve objectives were periodically revised upward, until a downward revision decided on 10 March 2008.

6. An index of "central bank Independence" is drawn and calculated for 163 countries. The index for Turkey shows that political autonomy increased from 0.50 in late 1980s to 0.67 at the end of 2003 while economic autonomy increased from 0.60 to 1.0. Overall autonomy increased from 0.55 to 0.82 in the associate periods. (Political autonomy takes into account the appointment process of governor, length of governor's term of office, involvement of government in central bank board and policy formulation, objectives of central bank, and conflict resolution process, while economic autonomy considers the limitations on the term, persistence and amount of direct credits to the government, and involvement of the central bank in the primary market for public debt securities.)

7. In emerging market countries with weak fiscal and financial institutions, currency substitution, and liability dollarisation, central bank independence is indispensable for the credibility of monetary policy. See Amato and Gerlach (2001), Eichengreen (2002) and Mishkin (2004).

8. See Gönenç and Yilmaz (2007).

9. See Schaechter *et al.* (2000), Amato and Gerlach (2001) and Carare *et al.* (2002).

10. Before recent GDP revisions.

11.   See OECD (2002) for detailed analysis of structural reforms in the banking sector.

12.   The widely accepted preconditions of inflation targeting can basically be identified as the existence of an independent central bank, a floating exchange rate regime (or absence of an anchor other than inflation), technical capacity for inflation modelling and forecasting, absence of fiscal dominance, and general macroeconomic stability that ensures the resilience of the economy against shocks. See for example, Schaechter *et al.* (2000), Amato and Gerlach (2001), Eichengreen (2002), Carare *et al.* (2002) and Mishkin (2004).

13.   See IMF (2005).

14.   A floating exchange rate regime and the independence of the central bank were already secured at the beginning of implicit inflation targeting. Fiscal discipline was achieved and the main fiscal targets were on track. A range of structural reforms, especially in banking, were supporting financial and macroeconomic stability. See Kara (2006) on Turkey's implicit inflation targeting experience.

15.   Such as the Balassa-Samuelson effects, and price measurement problems stemming from the improvement of the quality of goods during convergence.

16.   See Jonas and Mishkin (2003).

17.   Inflation targets were set as "point targets". The central bank has also included an "uncertainty band" of 2 percentage points on both sides around the target, to serve in the accountability mechanism.

18.   See Heenan *et al.* (2006).

19.   Percentage points of output to be sacrificed to achieve one percentage point of decline in inflation.

20.   Same as in footnote 17.

21.   See CBRT (2006).

22.   See Benes *et al.* (2007).

23.   Roger and Stone (2005) provide a detailed analysis of the degree at which early inflation targets were achieved in inflation targeting countries. Many countries failed to meet their early targets but this did not compromise their capacity to successfully establish and operate the new regime.

24.   According to the central bank's projections of 13% increase in food prices by end-2008, and the 9.3% headline inflation forecast for year-end 2008. See, CBRT, *Inflation Report*, Q2 2008, 30 April 2008.

25.   See Kara and Ogunc (2005) and Kara *and al.* (2007). The second study analyses the sources of the change in the exchange rate pass-through in Turkey.

26.   Turkish statistical Institute (Turkstat) started to publish seven core inflation indicators in 2005, called "special CPI aggregates" (SCA).These are: A. CPI excluding seasonal products; B. CPI excluding unprocessed food products; C. CPI excluding energy; D. CPI excluding unprocessed food products and energy; E. CPI excluding energy, alcoholic beverages, tobacco products; F. CPI excluding energy, alcoholic beverages, tobacco products, other products with administered prices and indirect taxes; and G. CPI excluding energy, alcoholic beverages, tobacco products, other products with administered prices, indirect taxes and unprocessed food products. Later, two more indicators, namely H and I, were added in September 2006 and May 2008, respectively. H is defined as CPI excluding energy, unprocessed food products, alcoholic beverages, tobacco products and gold, while I indicate H excluding processed food. Since the transition to the inflation targeting regime in 2006 the central bank has emphasized that different core inflation indicators will be used in inflation analysis and

communication policy, with attention drawn to different CPI indicators depending on the source of the shocks (see CBRT, 2005, 2006, and 2007).

27.   Before transition to full-fledged inflation, base money was used as a nominal anchor. However, the central bank stated explicitly that it would not consider base money as a central benchmark (see IMF-Letter of Intent, May 2001). This position was based on the fact that it was difficult to estimate money demand during disinflation, and the relationship between monetary aggregates and inflation was weak in Turkey.

28.   Inal (2006) examined this relationship empirically.

29.   A recent central bank research paper also seems to confirm this hypothesis. See Başkaya *et al.* (2008).

30.   The target and the forecast of the central bank are identical over a two-year horizon, as central bank's policy instruments are supposed to be powerful enough to reach the target. They may however differ in the short-term, for example for the year ahead. Market's expectations may still differ from the revised projections of the central bank for the same period.

31.   Other inflation-targeting countries are: Brazil, Czech Republic, Israel, Colombia, Philippines, South Africa, Hungary, Mexico, Peru, Poland, Romania, Chile, Slovakia and Thailand. See *CBRT Inflation Report*, Q1 2008.

32.   See also Celasun *et al.* (2003).

33.   See Başkaya *et al.* (2008).

34.   The weight of FDI confirms that *non-interest sensitive and structural* pull-factors are becoming more important. This reduces the scope of interest-rate cuts for reducing capital inflows. See Çulha (2006).

BIBLIOGRAPHY

Amato, J.D. and S. Gerlach (2001), "Inflation Targeting in Emerging Market and Transition Economies: Lessons after a Decade", *CEPR Discussion Paper Series*, No. 3074.

Arnone, M. *et al.* (2007), "Central bank Autonomy: Lessons from Global Trends", *IMF Working Paper*, No. 07/88.

Arvai, Z. (2005), "Capital Account Liberalization, Capital Flow Patterns, and Policy Responses in the EU's New Member States", *IMF Working Paper*, No. 05/213.

Başkaya, S., H. Kara and D. Mutluer (2008), "Expectations, Communication and Monetary Policy in Turkey", *Research and Monetary Policy Department Working Paper* 08/01, Central Bank of Turkey, Ankara.

Benes, J., M.C. Branco and D. Vavra (2007), "A Simple DGE Model for Inflation Targeting", *IMF Working Paper*, No. 07/97.

Blanchard, O. (2006), "Adjustment Within the Euro: the Difficult Case of Portugal", *MIT Department of Economics Working Paper,* No. 06-04, *www.bportugal.pt/events/conferences/IIIDEP/4.pdf.*

Calvo, G.A., L. Leiderman and C.M. Reinhart (1994), "The Capital Inflows Problem: Concepts and Issues", *Contemporary Economic Policy*, 12, 3, July.

Carare, A. *et al.* (2002), "Establishing Initial Conditions in Support of Inflation Targeting", *IMF Working Paper*, No. 02/102.

Celasun, O., R.G. Gelos and A. Prati (2004), "Obstacles to Disinflation: What is the Role of Fiscal Expectations?", *IMF Working Paper*, No. 04/111.

Cerisola, M. and R.G. Gelos (2005), "What Drives Inflation Expectations in Brazil? An Empirical Analysis",*IMF Working Paper*, No. 05/109.

CBRT (2004), "Monetary Policy and Exchange Rate Policy for 2005", *www.tcmb.gov.tr/yeni/duyuru/2004/DUY2004-59.pdf.*

CBRT (2005), "General Framework Of Inflation Targeting Regime And Monetary And Exchange Rate Policy For 2006", *www.tcmb.gov.tr/yeni/duyuru/2005/DUY2005-56.pdf.*

CBRT (2006), *Open Letter Written to the Government*, CBRT Press Release 2006-47.

CBRT (2006), "Monetary and Exchange Rate Policy for 2007", *www.tcmb.gov.tr/yeni/announce/2006/2007MonPol.pdf.*

CBRT (2007), "Monetary and Exchange Rate Policy for 2008", *www.tcmb.gov.tr/yeni/announce/2007/2008MonPol.pdf.*

CBRT (2008), *Inflation Report, 2008-I, www.tcmb.gov.tr/research/parapol/enf-ocak2008.pdf.*

Clark, P. *et al.* (1994), "Exchange Rates and Economic Fundamentals: A Framework for Analysis", *IMF Occasional Paper*, No. 115.

Clark, P.B. and R. MacDonald (1998), "Exchange Rates and Economic Fundamentals: A Methodological Comparison of BEERs and FEERs", *IMF Working Paper*, No. 98/67.

Çulha, A. (2006), "A Structural VAR Analysis of the Determinants of Capital Flows Into Turkey", *Research and Monetary Policy Department Working Paper* 06/05, Central Bank of Turkey, Ankara.

Driver, R.L. and P.F. Westaway, (2004), "Concepts of Equilibrium Exchange Rates", *Bank of England Working Paper,* No. 248.

Egert, B. (2004), "Assessing Equilibrium Exchange Rates in CEE Acceding Countries: Can We Have DEER with BEER without FEER? A Critical Survey of the Literature", *Bank of Finland Institute for Economies in Transition, Discussion Papers*, No. 1.

Eichengreen, B. (2002), "Can Emerging Markets Float? Should They Inflation Target", *Banco Central Do Brasil, Working Paper Series*, No. 36.

Eichengreen, B. and O. Choudhry (2005), "Managing Capital Inflows: Eastern Europe in an Asian Mirror", *www.econ.berkeley.edu/~eichengr/research/ankara9may26-05.pdf.*

Fabrizio, S., D. Igan and A. Mody (2007), "The Dynamics of Product Quality and International Competitiveness", *IMF Working Paper*, No. 07/97.

Frankel, J. (2006), "On the Yuan: The Choice between Adjustment under a Fixed Exchange Rate and Adjustment under a Flexible Rate", *CESifo Economic Studies*, Vol. 52, 2, pp. 246-275.

Gönenç, R. and G. Yilmaz (2007), "The Evolution and Determinants of Profitability in Turkish Manufacturing Industry, 1997-2006", *Research and Monetary Policy Department Working Paper* 07/01, Central Bank of Turkey, Ankara.

Heenan, G., M. Peter and S. Roger (2006), "Implementing Inflation Targeting: Institutional Arrangements, Target Design, and Communications", *IMF Working Paper*, WP/06/278.

Ho, C.R. and N. McCauley (2003), "Living with Flexible Exchange Rates: Issues and Recent Experience in Inflation Targeting Emerging Market Economies", *BIS Working Paper*, No. 130.

IMF (2007a), "The Quality of Domestic Financial Markets and Capital Inflows", in *Global Financial Stability Report*, September.

IMF (2007b), "Managing Large Capital Inflows", in *World Economic Outlook*, October.

Inal, D. (2006), "The Impact of Monetary Policy Decisions on Long-term Interest Rates in Turkey" (in Turkish), *Expertise Thesis,* Central Bank of Turkey, Ankara.

Isard, P. (2007), "Equilibrium Exchange Rates: Assessment Methodologies", *IMF Working Paper*, No. 07/296.

Jonas, J. and F.S. Mishkin, (2003), "Inflation Targeting in Transition Countries: Experience and Prospects", *NBER Working Paper Series*, No. 9667.

Kara, H. *et al.* (2007), "Exchange Rate Regimes and Pass-through: Evidence from the Turkish Economy", *Contemporary Economic Policy* 25(2)*, pp. 206-225.

Kara, H., F. Ogünç (2005), "Exchange Rate Pass-Through in Turkey: It is Slow, but is it Really Low?", *Research and Monetary Policy Department Working Paper* 05/10, Central Bank of Turkey, Ankara.

Kara, H. (2006), "Turkish Experience with Implicit Inflation Targeting", *Research and Monetary Policy Department Working Paper* 06/34, Central Bank of Turkey, Ankara.

Kibritcioglu, A. (2002), "Causes of Inflation in Turkey: A Literature Survey with Special Reference to Theories of Inflation", Chapter 3, in *Inflation and Disinflation in Turkey*, by A. Kibritcioglu, L. Rittenberg, and F. Selcuk (eds.), Aldershot, Ashgate.

Lee, J. (1997), "Sterilizing Capital Inflows", *International Monetary Fund, Economic Issues*, No. 7.

Lopez-Mejia, A. (1999), "Large Capital Flows: A Survey of the Causes, Consequences, and Policy Responses", *IMF Working Paper*, No. 99/17.

Minella, A. *et al.* (2003), "Inflation Targeting in Brasil: Constructing Credibility under Exchange Rate Volatility", *Journal of International Money and Finance,* 22(7), pp. 1015-1040.

Mishkin, F.S. (2004), "Can Inflation Targeting Work in Emerging Market Countries?", *NBER Working Paper Series*, No. 10646.

OECD (2002), *OECD Economic Surveys: Turkey*, Chapter II and Annex I, OECD, Paris.

OECD (2004), *OECD Economic Surveys: Turkey*, OECD, Paris.

OECD (2006), *OECD Economic Surveys: Turkey*, OECD, Paris.

Otker-Robe, I. *et al.* (2007), "Coping with Capital Inflows: Experiences of Selected European Countries", *IMF Working Paper*, No. 07/190.

Rajan, R.S. (2007), "Managing New-Style Currency Crises: The Swan Diagram Approach Revisited", *Journal of International Development,* 19, pp. 583-606.

Schaechter, A., M. Stone, M. Zemler (2000): "Adopting Inflation Targeting: Practical Issues for Emerging Market Countries", *IMF Occasional Paper*, No. 202.

Serdengecti, S. (2006), "Inflation Targeting: Performance and Challenges", Opening speech delivered at the Conference on "Inflation Targeting: Performance and Challenges", Istanbul, *www.tcmb.gov.tr/yeni/duyuru/2006/IT_sunum_ing.pdf.*

Swan, T.W. (1963), "Long-run Problems of the Balance of Payments", in *The Australian Economy*: *A Volume of Readings*, by H.W. Arndt and W.M. Corden (ed.), pp. 384-95, Cheshire Press, Melbourne.

Wong, C.H. (2002), "Adjustment and the Internal-External Balance", in Mohsin S. Khan, Saleh M. Nsouli and Chorng-Huey Wong (eds.), *Macroeconomic Management Programs and Policies*, International Monetary Fund, Washington, DC.

Yilmaz, G. and R.Gönenç, "How did the Turkish Industry Respond to Increased Competitive Pressures, 1998-2007", *Research and Monetary Policy Department Working Paper* 08/*,* Central Bank of Turkey, Ankara.

Annex A1

Experiences of middle-income countries with capital inflows: lessons for Turkey

The recent experiences of other emerging market economies with the acceleration of capital inflows were reviewed with a view to draw lessons for Turkey (Table A1.1).

Beyond individual country experiences, a recent cross-country study screened 109 episodes of capital inflow accelerations to 49 countries in Europe, Asia and Latin America between the 1990s and 2007, and analysed policy responses and observed consequences. It reached the following conclusions:

- Public expenditure restraint during capital inflows helped both with lower real exchange rate appreciation and stronger GDP growth after the deceleration of inflows.

- Policies of "resistance" to appreciation have generally not been successful. When they were implemented, they were often followed by a sharper reversal of capital inflows at the end of the inflow cycle.

- Restrictions on inflows did not significantly slow real appreciation, as a general rule. Neither did they facilitate a soft landing at the end of the inflow cycle.

- Capital importing countries with high current account deficits are relatively more vulnerable to a subsequent reversal of capital inflows.

Table A1.1. Policy options to reduce the adverse effects of capital inflows [1]

Policies	Pro's	Con's
No policy response		
Allowing nominal appreciation	Discourages speculative inflows by imposing FX risk on market participants.	Inflation target may be undershot
	Allows exchange rate movements to absorb the effects of capital inflows	Facilitates real appreciation, with adverse effects on the external balance.
	Real exchange arte appreciation is likely to occur through nominal appreciation rather than through higher inflation.	
	Supports inflation targeting	
Monetary and exchange rate measures		
Exchange rate intervention	Directly reduces pressure on the exchange rate.	Creates inflationary pressure by causing monetary and credit expansion.
		Threats the credibility of inflation targeting if it is perceived as dictated by competitiveness concerns.
		Ineffective if fundamentals are truly strong and continue to attract foreign capital.
		Ineffective if it further encourages capital inflows by keeping interest rates high.
Sterilisation	Prevents monetary expansion	Faces difficulties when implemented through:
		Open Market Operations
		- it requires well developed financial markets.
		- it is costly because the use of government securities increases the debt burden of the government and the central bank.
		- crowding out effect may emerge if banks invest their funds in the central bank instead of lending to the business sector.
		Required Reserves
		- costly if reserves are remunerated.
		- frequent changes in reserve requirements reduce the banking sectors' flexibility in liquidity management.
Widening the exchange rate fluctuation band *(Under fixed exchange rate regime)*	Discourages speculative inflows motivated by appreciation expectations.	There is more room for speculative plays within the fluctuation band.
	Gives the central bank more flexibility in its interventions in the foreign exchange market.	
Interest rate cut	Discourages interest sensitive capital inflows by making interest arbitrage less attractive.	May threat the inflation target.
	Useful for avoiding the difficulties of sterilization.	Difficult to determine the amount of interest cut consistent with the intended decrease in capital inflows.
		Ineffective if inflows are not interest-rate sensitive (FDI; etc.).

Table A1.1. Policy options to reduce the adverse effects of capital inflows (cont'd)

Policies	Pro's	Con's
Fiscal measures		
Expenditure cuts and tax increases	Restricts total demand and reduces inflationary pressures.	It may accelerate capital inflows by reducing country risk.
	Save on sterilisation costs.	Long lead times because of the inertia of budget procedures.
	Open more room for monetary policy.	Politically difficult because of pro-cyclical borrowing ease.
	Open more room for fiscal stimulus when capital inflows decline.	
	Leads to lower risk perceptions and attracts longer term capital.	
Financial regulatory measures		
Banking supervision and regulations	Reduces the vulnerability of the financial sector.	Financial institutions can circumvent the measures through various balance sheet operations.
Capital controls		
Controls on capital inflows	May stabilise capital inflows directly and rapidly.	Generally circumvented when utilised for a long period of time.
	Diminishes risks of shock from sudden stops.	May frighten longer-term capital rather than speculative inflows.
	Allows more independent monetary policy.	Distorts resource allocation when enterprises are deprived of cheaper capital from abroad.
Liberalising capital outflows	Reduces net capital inflows.	Encourages additional capital inflows by improving confidence.
	Facilitates portfolio diversification of investors.	Creates risks of capital flight.
	Provides positive signals on the future full liberalisation of the capital account.	

Source: Calvo *et al.* (1994); Lee (1997); Lopez-Mejia (1999); Ho and McCauley (2003); Arvai (2005); Eichengreen and Choudry (2005); Otker-Robe *et al.* (2007); IMF (2007a); IMF(2007b), Roubini (2007).

WORKING PAPERS

The full series of Economics Department Working Papers can be consulted at www.oecd.org/eco/Working_Papers/

645. *Improving cost-effectiveness in the health-care sector in Iceland*
(October 2008) Hannes Suppanz

644. *Understanding Russian regions' economic performance during periods of decline and growth – an Extreme Bound Analysis approach*
(October 2008) Rüdiger Ahrend

643. *Do tax structures affect aggregate economic growth? Empirical evidence from a panel of OECD countries*
(October 2008) Jens Arnold

642. *Accounting for one-off operations when assessing underlying fiscal positions*
(October 2008) Isabelle Joumard, Makoto Minegishi, Christophe André, Chantal Nicq and Robert Price

641. *Do corporate taxes reduce productivity and investment at the firm level? Cross-country evidence from the Amadeus dataset*
(October 2008) Cyrille Schwellnus and Jens Arnold

640. *The challenge of rapidly improving transport infrastructure in Poland*
(September 2008) Rafal Kierzenkowski

639. *Bridging the housing gap in Poland*
(September 2008), Rafal Kierzenkowski

638. *Improving the business and investment climate in Indonesia*
(September 2008), Diego Moccero

637. *Growth performance and policy challenges*
(September 2008), Luiz de Mello

636. *A taxonomy of instruments to reduce greenhouse gas emissions and their interactions*
(September 2008), Romain Duval

635. *Quantifying the effect of financial conditions on US activity*
(September 2008) Stéphanie Guichard and David Turner

634. *Have long-term financial trends changed the transmission of monetary policy*
(September 2008), Stéphanie Guichard and David Turner

633. *Raising education achievement and breaking the cycle of inequality in the United Kingdom*
(August 2008) Anne-Marie Brook

632. *The euro changeover in the Slovak Republic: implications for inflation and interest rates*
(August 2008) Felix Hüfner and Isabell Koske

631. *Tax reform for efficiency and fairness in Canada*
(August 2008) Alexandra Bibbee

630. *Reforming the Polish Tax System to Improve its Efficiency*
(August 2008) Alain de Serres

629. *Modernising Canada's Agriculture Policies*
(August 2008) Peter Jarrett and Shuji Kobayakawa

628. *Recent trends and structural breaks in US and EU15 labour productivity growth*
(August 2008) Laure Turner and Hervé Boulhol

627. *Health Status Determinants: Lifestyle, Enviroment, Health Care Resources and Efficiency*
(August 2008) Isabelle Joumard, Christophe André, Chantal Nicq and Olivier Chatal

626. *Market Mechanisms in Public Service Provision*
(August 2008) Hansjörg Blöchliger

625. *Improving human capital formation in India*
(July 2008) Sean M. Dougherty and Richard Herd

624. *Labour regulation and employment dynamics at the state level in India*
(July 2008) Sean M. Dougherty

623. *India's growth pattern and obstacles to higher growth*
(July 2008) Sean M. Dougherty, Richard. Herd, Thomas. Chalaux and Abdul. Erumban

622. *Reaping the benefits of stronger competition in network industries in Germany*
(July 2008) Nicola Brandt

621. *The Usefulness of Output Gaps for Policy Analysis*
(July 2008) Isabell Koske and Nigel Pain

620. *Taxation and Economic Growth*
(July 2008) Åsa Johansson, Christopher Heady, Jens Arnold, Bert Brys and Laura Vartia

619. *Coping with labour shortages: How to bring outsiders back to the labour market*
(July 2008) Ekkehard Ernst

618. *Achieving sustainability of the energy sector in Canada*
(June 2008) Annabelle Mourougane

617. *The Dutch tax-benefit system and life-cycle employment. Outcomes and reform options*
(June 2008) Ekkehard Ernst and Timo Teuber