# Makroekonomska tveganja ob vstopu v ERM2 in EMU ter implikacije za ekonomsko politiko

Urad za makroekonomske analize in razvoj

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# Macroeconomic Risks in the ERM II and EMU: Implications for Slovenian Economic Policy

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# Povzetek

Slovenija se je odločila, da vstopi v mehanizem deviznih tečajev ERM II le dva meseca po pridobitvi polnopravnega članstva v EU. To odraža odločitev za hiter prevzem evra. Dvoletno obdobje članstva v ERM II bo za Slovenijo testno obdobje za članstvo v EMU. Glavna naloga ekonomske politike v tem obdobju bo izpolnitev Maastrichtskih kriterijev. Izpostavljenost makroekonomskim tveganjem bo večja v ERM II kot v EMU, kar pomeni, da mora Slovenija koordinirati svoje ekonomske politike tako, da bo mogoč čimprejšnji prevzem evra in se obdobje članstva v ERM II ne bo po nepotrebnem podaljšalo prek minimalnega obdobje dveh let.

V povezavi s članstvom v ERM II so v poročilu identificirani sledeči viri makroekonomskih tveganj:

1. *Tveganje neprimernega osrednjega menjalnega razmerja.*
2. *Tveganje prekomernih kapitalskih tokov.* Škodljive tokove kapitala lahko povzročijo trije dejavniki tveganja:
   - *Spremembe v pričakovanjih javnosti glede datuma vstopa v EMU.*
   - *Asimetrični šoki.*
   - *Nekonsistentno vodenje ekonomske politike.*

Ti dejavniki tveganja bodo še posebej izraziti v ERM II. V EMU Slovenija ne bo več izpostavljena prvemu, medtem ko se pomen preostalih dveh v EMU bistveno zmanjša.

3. *Tveganje prekomerne kreditne ekspanzije.*

Da bi se zmanjšala izpostavljenost slovenskega gospodarstva negativnim učinkom navedenih dejavnikov tveganja predlagava sledeča priporočila ekonomski politiki:

1. Priprava delovanja fiskalne politike v srednjeročnem okviru in vpeljava fiskalnih pravil. Fiskalna pravila naj temeljijo na jasnem izdatkovnem pravilu, ki bo služilo kot glavno orodje makroekonomske stabilizacije tako v obdobju članstva v ERM II kot kasneje v EMU. Poleg tega naj bo fiskalna politika v obdobju bivanja v ERM II relativno restriktivna.
2. Ustrezne dohodkovne politike naj podprejo osnovne politike v procesu nadaljnega zniževanja inflacije in blažijo potencialne negativne posledice relativno restriktivne fiskalne politike na gospodarsko rast.
3. S finančnega vidika se lahko vzpodbuja pospešena evroizacija pred samim prevzemom evra. Vpeljava evra kot zakonitega plačilnega sredstva bo jasen znak zavezanosti hitremu prevzemu evra. Poleg tega

takšna poteza ni v nasprotju s pravili EU o denarni integraciji, saj ne pomeni enostranske odprave lastne valute in omogoča določitev osrednjega menjalnega razmerja.

4. Nadzor bančnega sistema: Kvaliteten nadzor bančnega sistema je potreben za preprečitev morebitnih težav s povečanjem slabih posojil v portfeljih poslovnih bank v procesu kreditne ekspanzije.

5. Razvoj finančnega sektorja bo ključen element celostne makroekonomske strategija v bližnji prihodnosti. Delež kreditov zasebnemu sektorju v bruto domačem proizvodu je precej pod ravnovesno ravnjo, kar pomeni, da bo potrebno premostiti velik razkorak v globini finančnega trga. Slovenski finančni sektor se mora razviti tako z vidika globine kot učinkovitosti. Liberalizacija in odprtost tuji konkurenci bosta pripomogli k doseganju večje učinkovitosti še posebej po prevzemu evra. Vendar velja opozoriti, da vstop tujih finančnih posrednikov ne bo rešil problema nezadostne kreditne ponudbe majhnim in srednjim podjetjem. Izkušnje drugih držav kažejo, da bančna konsolidacija in vstop tujih bank ne izboljša dostopa majhnih in srednjih podjetij do ustreznih kreditnih storitev. Zaradi tega je razvoj domačega finančnega sistema v smeri boljše kreditne ponudbe majhnim in srednjim podjetjem eno ključnih področij delovanja slovenske ekonomske politike.

# Executive summary

The decision to enter the ERM II mechanism of exchange rates in June 2004, two months after the entry to the EU, reflects the fact that Slovenia has set on a path of fast Euro adoption. The two-year period in the ERM II will be the test period for Slovenia's readiness for EMU membership. The main policy objective during this period will be the fulfillment of the Maastricht criteria. Exposure to adverse macroeconomic risks in the ERM II will be much higher than in the EMU. This implies that the Slovenian economic policy should coordinate its economic policies in way that would enable the adoption of the Euro as soon as possible and not strech the stay in the ERM II beyond the minimum period of two years.

The main macroeconomic risks Slovenia will be exposed to in the ERM II are the following:

1. *Risk of incorrect central parity.*

2. *Risk of excessive capital account volatility.* Three risk factors that can spur damaging capital movements can be identified:

   - Changes in market perception about the *timing of Euro adoption.*
   - *Asymmetric shocks.*
   - *Policy inconsistencies.*

These risk factors will be especially pronounced in the ERM II. In the EMU the first completely disappears, while the importance of the latter two as sources of macroeconomic instability decrease substantially.

3. *Risk of credit booms.*

To reduce the exposure of Slovenian economy to such risks we propose the following policy advises:

1. The adoption of a fiscal framework and fiscal rules, possibly based on clear expenditures rules, that will serve as main macroeconomic tool both during the ERM II period and after the adoption of the Euro. In particular, the fiscal policy should be relatively restrictive.

2. Incomes policies during the ERM II as an accompanying policy ensuring a faster reduction of inflation and a softening of possible short-term adverse output effects of tight fiscal policy.

3. On financial policy, a main question is whether policies should foster the increase of Euroization before adoption? Introduction of the Euro

as a legal tender in the ERM II is a clear sign of commitment to adopt the Euro. Such a move is allowed by the EU rules of monetary integration, because it does not involve a unilateral abolishment of own currency and it allows for determination of the central parity in the ERM II.

4. Banking supervision: Good banking supervision is required to avoid potential problems of increased share of non-performing loans in banks' portfolios during the unavoidable credit expansion.

5. Finally, a key element of the overall macroeconomic strategy in the near future is the development of the financial sector. There is a large gap to be filled in terms of the depth of the financial sector. Credit to the private sector as a share of GDP is well below its "equilibrium" level. The financial sector in Slovenia has to develop both in terms quantity of credit and efficiency of the banking sector. Opening up of the banking sector to foreign competition may help speeding up an increase in efficiency, especially after the adoption of the Euro. However, such opening up is not going to be sufficient to solve the problem of insufficient access to credit of small and medium enterprises. The experience of other countries shows that consolidation of the banking sector and entry of foreign banks does not improve access of SMEs to credit. Development of the domestic financial sector in the direction of improved supply of credit to SMEs is a fundamental area for policy-makers.

# 1 Introduction

In May 2004 Slovenia became a member of the European Union and decided to undertake the strategy of fast entry into the EMU. The strategy of fast adoption of the Euro also implies an early entry to the exchange rate mechanism ERM II. The Slovenian government and the Bank of Slovenia have reached a consensual agreement on the strategy and timing of entry to the ERM II, the length of stay in the ERM II and subsequent adoption of the Euro. These are reflected in the joint programme of the Slovenian Government and Bank of Slovenia for ERM II entry and adoption of the Euro, released in November 2003. Regarding the timing of the ERM II the official position is:

*The Slovenian government and the central bank agreed on a joint monetary integration strategy according to which Slovenia would intend to join ERM II by the end of 2004.*

As regards the adoption of the Euro:

*Both the Bank of Slovenia and the Government support adoption of the Euro at the earliest opportunity and judge that it will be possible at the beginning of 2007.*

These intentions materialized at the end of June 2004 when Slovenia entered the ERM II. Given the clear intention of fast addoption of the Euro this paper provides an overview of risks associated with this process and provides a set of policy implications to reduce the exposure to such risks. In section 2 we first discuss the institutional framework of the ERM II system of exchange rates and critically discuss the constraint it puts on domestic monetary and fiscal policy. A brief overview of economic arguments in favor and against an early Euro adoption is also provided. Section 2 continues with identification of main macroeconomic risks facing Slovenia in the ERM II and EMU. The emphasis is put on the the ERM II because of the hogh expected vulnerability of the Slovenian economy during the transition to the Euro. For each of the risk factors suitable policy implications are offered. Section 3 discusses the issues related to fiscal policy, which will be the only tool of macroeconomic adjustment available to Slovene policymakers after the adoption of the Euro. This section gives broad guidelines for preparation of a meduim-term fiscal framework that would enable Slovenia to retain fiscal sustainability and, at the same time, increase the stabilization efficiency of fiscal policy. Section 4 presents the summary of policy implications.

A majority of the conclusions and policy implications have been derived from a macroeconomic model whose framework is described in the appendix.

# 2 ERM II: Constraints and risks for monetary policy

## 2.1 Institutional framework and economic aspects of ERM II

To the extent that it is part of the Maastricht Treaty obligations to adopt the Euro, ERM II membership also imposes a legal requirement on Member States with a derogation. The Resolution of the European Council on the establishment of an exchange rate mechanism in the third stage of Economic and Monetary Union (Amsterdam, June 1997) states three main characteristics of ERM II that are in principle meant to help participating Member States orient their policies to stability and to foster convergence.

First, the main objective of ERM II is to support a stable economic environment needed for the good functioning of the single market. These should be reflected in the absence of real exchange rate misalignment and excessive nominal exchange rate fluctuations between the Euro and other EU currencies. ERM II is expected to provide Member States outside the Euro area with a reference for their conduct of sound economic policies, particularly in the monetary field, designed to foster real convergence and support their efforts to adopt the Euro, and to help protect participants from unwarranted pressures in foreign exchange markets.

Second, the main features of ERM II include: (i) a central rate against the Euro; (ii) a standard fluctuation band of $\pm 15\%$ around the central rate; (iii) obligatory interventions at the margins, which are in principle automatic and unlimited; and (iv) availability for very short-term financing. The Resolution emphasizes, however, that the ECB and the participating NCBs could suspend intervention, if this were to conflict with their primary objective. Such a decision to suspend intervention would take due account of all relevant factors and in particular of the need to maintain price stability and the credible functioning of the exchange rate mechanism. This latter caveat implies that the ECB will not automatically act to bail out the country. In such a case, a country might be persuaded to reconsider the value of its central parity.

Finally, participation in the exchange rate mechanism will be voluntary for the Member States outside the Euro area. Nevertheless, Member States with a derogation can be expected to join the mechanism, while a Member State which does not participate from the outset in the exchange rate mechanism may do so at a later date. The Resolution makes no mention of entry conditions and provides no grounds for a refusal of the application. However, a country cannot enter ERM II unilaterally. A common accord on the central parity and fluctuation bands needs to be reached.

The European System of Central Banks has published its views on exchange rate issues relating to new EU member states in December 2003.

The ECB maintains a positive view on the ERM II arguing that a number of policy challenges faced in the run-up to the Euro may be tackled best within that framework. The ECB defends a positive assessment of the value of ERM II from four main points of view:

- **Discipline**: By requiring consistent economic policies, ERM II could help in providing a more stable macroeconomic environment and could moreover act as a catalyst for structural reforms.

- **Credibility**: ERM II, with its announced central parity, would provide guidance to participants in foreign exchange markets, and may thereby contribute to greater exchange rate stability. Moreover, by anchoring inflation expectations and reducing exchange rate volatility, ERM II may also contribute to the process of disinflation (which is still an important task for Slovenian economic policy). Unlike other intermediate regimes, ERM II entails ultimate exit into the Euro area, thus making the system more resilient than other alternative exchange rate regimes.

- **Adjustability**: The standard fluctuation band would leave sufficient room to adjust to asymmetric shocks and structural changes in the economy. Moreover, in the event that the catching-up process is faster than expected, a revaluation of the central rate would be possible.

- **Multilateralism**: The multilateral character of ERM II would be a feature that would enhance the credibility of the framework, as all parties would be engaged in monitoring economic and policy developments, and assessing market reactions and possibly ultimately coordinating actions, if required.

Regarding the length of ERM II participation, the minimum period of ERM II membership is two years prior to the convergence assessment, highlighting that the length of participation in ERM II should be assessed in terms of what is most helpful to accompany the convergence process, rather than in terms of the required minimum period. As will be emphasized below, there are no strong economic reasons for Slovenia to delay entry and moreover to stay in the ERM II longer than minimally required. This implies that Slovenia will have to participate in the ERM II for at least two years during which it should not experience any severe tensions. The nominal exchange rate will need to be kept close to parity with the possibility of revaluation. Moreover, the official fluctuation band width ($\pm 15\%$) will not influence the assessment of the exchange rate stability Maastricht criterion.

## 2.2 Benefits and costs of early Euro adoption

The cost and benefits of Euro adoption for the case of Slovenia are analyzed in detail in Damijan et al. (2003). In this section we review them briefly and also add some new insights. As for the benefits, an early EMU membership would strengthen economic policy discipline, accelerate structural reforms and raise the growth potential through higher investment following the elimination of exchange rate uncertainty. More specifically, early EMU membership should have positive impacts on domestic economic policy through requiring balanced public budgets and would mobilize candidate countries to complete their structural reforms. In particular, in the Euro area Slovenia will benefit from the EU policy coordinating framework and the multilateral surveillance procedure to impose fiscal discipline on the government. With respect to the ERM II we discuss in detail below that ERM II participation would be substantially facilitated by a sound medium-term fiscal strategy. Slovenia's sound fiscal position enables it to enter the ERM II early. In addition, fiscal policy should be formulated in a way that would enable smooth adoption of the Euro and minimize macroeconomic risks in the ERM II.

The elimination of nominal exchange rate uncertainty would imply benefits arising from lower transaction costs, enhance trade and investment, and lower the risks of financial sector disturbances. At the same time, the Stability and Growth Pact, coupled with a decline in the risk premium, would lead to a stabilization of long-term interest rates at a low level.

As emphasized by Buiter (2004), achieving fiscal sustainability prior to adopting the Euro is essential. Following this line of reasoning we can argue that the costs of an early Euro adoption are in general not seen as significant in those countries that have no or only relatively moderate fiscal deficits and Slovenia is among such countries. In some new EU member states the medium and long-term gains of Euro adoption have increasingly been contrasted with the short-term costs of fiscal consolidation. These have led Poland, the Czech Republic and Hungary to delay entry to the Euro area. As for other potential costs, there are strong theoretical and empirical arguments that the cost of relinquishing independent monetary policy and flexible exchange rates is limited owing to the high degree of trade and financial integration with the Euro area (Buiter, 2004). Moreover, it has been maintained that the ongoing harmonization in economic structures and business cycles will diminish the importance of asymmetric shocks over time (Darvas and Szapary, 2004). In this respect, Slovenia shows a remarkable business cycle synchronization with Euro area that is at present higher than the synchronization of peripheral members of the Euro area (ECB, 2004).

Another argument that shows to limited cost of early Euro adoption is inefficiency of independent monetary policy to absorb asymmetric real shocks (Masten, 2002; Borghijs and Kuijs, 2004). From this angle also the

opposite could happen that the exchange rate market besides not being able to provide a shock-absorbing capacity could be in fact a source of shocks (Buiter, 2004). An important drawback of monetary independence in countries without hard currency pegs (like Poland, the Czech Republic, Hungary and Slovenia) is also that it has led to accommodative monetary policies that are less efficient in providing price stability (Coricelli, Jazbec and Masten, 2004).

The study by the European Central Bank (2004) reveals that already in 2002 the acceding countries, five years before their intended adoption of the Euro, have come much closer to nominal convergence than the current Member States five years before they qualified for EMU, i.e. 1996 for Greece and 1994 the other Euro area countries. Slovenia scored very well in terms of all indicators of nominal convergence with the exception of the inflation rate. However, after 2002 the inflation rate in Slovenia has been reduced significantly from above 7% to below 4%. It is important to emphasize that the inflation rate needs to be further reduced. Complete elimination of average positive depreciation rates of the nominal exchange rate that have been kept over the whole transition period will contribute to this process, but as we discuss below, a prudent fiscal framework will also be needed in order not to expose the economy to unnecessary risk of failing on the inflation criterion and prolongation of ERM II membership. As regards long-term interest rates, Greece, Italy, Portugal and Spain had, five years before they entered the Euro area, much higher interest rates than acceding countries in general (including Slovenia) have in the present situation. Moreover, Slovenia's fiscal position both in terms of share of public debt in the GDP and current fiscal deficit is very favorable and does not impose any risks in the ERM II.

Overall, by taking all these arguments together, an early Euro adoption is expected to boost growth in acceding countries through higher investment and trade, and thereby to contribute to real convergence with the EU countries. Furthermore, an early adoption of the Euro is openly supported by a number of academics. They mainly refer to the fact that the capital markets of acceding countries are small and liberalized, which could make them vulnerable to financial crises or trigger excessive exchange rate volatility (see e.g. Buiter and Grafe, 2002; Coricelli, 2002b). With the entry to the Euro area, national foreign exchange markets will no longer exist and thus not act as a source of shocks. The adoption of the Euro could also eliminate the interest rate premium and reduce interest rates (Coricelli, 2002b; Mundell, 2002; Gross, 2000). Finally, some authors argue that an ambitious timetable for the adoption of the Euro would trigger earlier reforms of public finances and would thereby contribute to higher growth (Buiter, 2004; Center for European Policy Studies, 2002).

## 2.3 Macroeconomic risks in ERM II

After the initial transition crisis Slovenia experienced a relatively smooth economic development in the last decade. Liberalization of trade and capital account passed by without severe repercussion at macroeconomic level. Nevertheless, absence of problems in the past does not guarantee their absence also in the future, especially when such an important economic change as entry to the ERM II and subsequently adoption of the Euro is considered. For this reason, economic policy has to identify potential risk factors and make and attempt to develop necessary measures for their neutralization. We can distinguish two broad types of macroeconomic risk relating to ERM II membership. The first is related to the process of entry to ERM II and the second to the macroeconomic risks a country might be subject to while already operating in the ERM II. Just a brief discussion will be devoted to the former, while the latter will be discussed in detail.

### 2.3.1 Risks relating to the ERM II entry

**Changes in the exchange rate regime**

As regards the process of entry to the ERM II it is advisable not to introduce any significant exchange rate regime changes prior to the entry to the ERM II. Slovenia at the moment has an exchange rate regime that is consistent with a smooth continuation in to the ERM II system upon the mutual agreement on the central parity. No other *de jure* and *de facto* changes in the official exchange rate regime are required prior to the actual entry. There are several economic reasons that justify this, but most important is the issue of undone credibility that has been costly to build in the past. Moreover, changes in the regime may raise uncertainty regarding the country's medium-term monetary strategy, thereby distorting economic decisions and risking those stabilization gains already accomplished. In this respect Slovenia'a decision not to introduce formal changes in the exchange rate regime in the process of Euro adoption is correct.

**Choice of central parity**

The second risk factor associated to the entry to the ERM II is the choice of the parity. In principle, the choice of the correct nominal parity depends on the estimate of the equilibrium real exchange rate. If the current real exchange rate is close to its equilibrium value no corrections are needed to market nominal exchange rate in setting the parity. If the real exchange rate shows signs of over or undervaluation the choice of the parity should take this into account in order to facilitate the adjustment towards the equilibrium. Even though the estimates of equilibrium real exchange rates tend to be rather imprecise and give little guidance to the right choice of the nominal parity, the estimates available for Slovenia reveal little signs of misalignment. That the real exchange rate is close to its equilibrium is

confirmed by the fact that Slovenia does not face significant macroeconomic imbalances and large current account deficits in particular. In the past years the real exchange rate has been relatively stable and exhibited slight trend appreciation, which is due to the catching-up process an equilibrium process and hence expected to persist also in the future. Central exchange rate parity in the ERM II should therefore closely reflect the market exchange rate on the day of the entry. Morover, due to very high and fast pass-through effect of nominal exchange rate changes to CPI inflation in Slovenia (Coricelli, Jazbec and Masten, 2004) it is unlikely that changes in the nominal parity will significantly adjust the real exchange rate due to the effect on prices. It is also worth emphasizing that at the very beginning this will not induce any unnecessary speculative capital movements and large domestic financial portfolio shifts.

### 2.3.2 Risks in the ERM II

The institutional framework of ERM II, together with the Maastricht criteria, has been severely criticized (see Coricelli, 2002a, 2002b; Buiter, 2004 among others). These are closely linked to the macroeconomic risks of ERM II. As emphasized by Buiter (2004) the Maastricht criteria for nominal convergence impose the achievement of three nominal targets simultaneously (inflation, exchange rate and nominal interest rate criterion), which can be conflicting and lead to financial instability. Keeping in mind that sound fiscal situation is a crucial precondition for ERM II entry *per se,* the macroeconomic risks in the ERM II can be categorized into two groups: (i) capital account volatility and (ii) credit booms.

### 2.3.3 Capital account volatility

Because Slovenia is a very open economy it is potentially exposed to large and potentially damaging capital flows. It is true that in the past large capital inflows have been mainly attracted by the favorable fundamental development in the Slovenian economy and hence they have not proven to be volatile. In addition, absence of derivatives markets and monetary policy that reduced the volume of interest rate sensitive flows also contributed to the stability. However, absence of volatile capital flows in the past does not imply that these cannot occur in the future. Three risk factors that can spur damaging capital movements can be identified (IMF, 2004): changes in market perception about the timing of Euro adoption, asymmetric shocks and policy inconsistencies. These risk factors will be especially pronounced in the ERM II. In the EMU the first completely disappears, while the importance of the latter two as sources of macroeconomic instability decrease substantially. In principle, they could cause large capital movements, but with common currency in place these would not transfer into sharp changes

in risk premia or large expected changes in the nominal exchange rate.

**Perception of timing of Euro adoption**

Uncertainty related to the actual date of Euro adoption would have potentially large effect on capital flows and/or the market exchange rate, with potential negative spillovers to macroeconomy. The expected terminal date, together with a credible central parity, will anchor the path for interest rates and the market exchange rate to converge to Euro area interest rate and the conversion rate respectively. The importance of credible time framework of Euro adoption is, for example, advocated by Buiter (2004), who argues that it was actually a very clear time frame of creation of EMU in January of 1999 the key force that actually overcame potential destabilizing effect in ERM II. In this respect it is important that Slovenia prepares a set of macroeconomic policies that are consistent with achievement of Maastricht criteria. Moreover, the strategy of timing of Euro adoption, monetary policy strategy in the ERM II and medium-term fiscal framework have to be completely transparent (!) and intensively communicated to the markets.

Market expectations about the credibility of announced strategies can be monitored through the behavior of interest rates. Slovenian interest rates of similar maturities are still above the Euro-area levels, even though the spread is lower than it was in periphery EU countries some three to four years prior to their Euro adoption (ECB, 2004). Fast additional convergence without appropriate convergence of policy measures would raise the question of sustainability. On the other hand, a slow convergence could signal market skepticism about the credibility of policies to the central parity. Close monitoring of interest rate behavior (its risk premium part) is therefore required as an early warning system. Slovenia favorable position in terms of debt to GDP ratio is a strength that should be enhanced by further fiscal consolidation that would keep the budget deficit well above the Maastricht limit, and further disinflation.

**Asymmetric shocks**

Potential asymmetric shocks will be an important risk factor in the ERM II and EMU alike. While exposure to nominal shocks originating in the foreign exchange market will be eliminated completely in the EMU, exposure to asymmetric real shock will remain and require flexibility in the labor market and stability oriented fiscal framework. In the past Slovenian monetary policy did not prove to be successful in cushioning asymmetric real shocks (see above), hence from this point of view ERM II with its limited flexibility will not represent any significant changes. The Bank of Slovenia, on the other hand, made significant attempts to limit interest sensitive capital flows. As the experience of 1992/93 ERM crisis demonstrates we cannot rule out asymmetric nominal shocks to happen also in the ERM II. For this reason, Slovenia's ability to withstand shocks will depend on the nature of the

shocks, the consistency of the policy responses and the clarity of communications with the markets and how monetary policy decisions will be made. For most shocks, serious risks would arise primarily if policies are not sufficiently responsive and monetary frameworks do not provide sufficient latitude for and clarity about absorbing disruptions to financial conditions. In practice, most shocks can be addressed within a clearly defined monetary framework that leaves little doubt in the market about the credibility of authorities' response. As we explain below this can be best achieved with a policy mix where relative restrictiveness of fiscal policy allows monetary policy not be restrictive in order to curb inflationary pressures. In such circumstances intrinsic pressures for nominal currency appreciation are reduced and the space to manoeuvre in response to potential asymmetric shocks without putting the central parity under consideration maximized.

**Policy inconsistencies**

Policy inconsistencies between fiscal and monetary policy could lead to unsustainable capital inflows. Hungarian experience in 2003 is a good example of such an event. Ambitious inflation target required strong forint, which led to the speculative pressures to appreciate. When it became clear that unsustainable fiscal position would require an adjustment in the opposite direction and the ambitions in inflation reduction were lowered, the opposite occurred with a speculative outflow of capital. From this point of view the policy implication for Slovenia presented below foresees a relatively tight fiscal position that should not put at risk the achievement of the inflation target.

### 2.3.4 Risk of credit booms

A significant credit expansion of the Slovene financial sector (predominantly banking sector) is expected in the following years. The causes for this phenomenon are related both to the process of economic convergence and Euro adoption. Further productivity growth will offer ample investment opportunities and lead to growth of permanent income. As a consequence, bank credit to private sector will necessarily grow. Positive effects of Euro adoption on growth will also increase aggregate demand and increase credit activity. In addition, real credit growth is expected to increase for pure financial effects relating to Euro adoption. The fall in risk premium will push down the cost of foreign borrowing by banks. To a large extent this has already been seen in Slovenia recently as the nominal interest rates have fallen rapidly after 2002. Besides the reduced inflation a large portion of decrease can be explained also by reduced risk premia in light of EMU membership. In the ERM II and Euro area, when interest rates will be determined by Euro-area conditions, cyclical and structural factors (Balassa-Samuelson effect) can keep inflation higher than in the Euro area, very low or even

negative real interest rates could add to risk of credit boom. As external adjustments via nominal exchange rates are very limited in ERM II (unless country decides to prolong its stay in the system) and no longer possible in EMU, competitiveness concerns could arise if a country were confronted with an excessive increase in their relative price level (e.g. through inappropriately low interest rates and resulting overheating). The ensuing losses in competitiveness could no longer be corrected through devaluation and would instead have to be corrected through a phase of lower or perhaps negative wage and price growth.

Credit expansion can to a large extent be seen as an equilibrium process. The study by the IMF (2004) reveals a large gap between actual credit-to-GDP ratio in Slovenia (similar to other new EU members). Depending on the modelling approach, the estimates show this ratio, in 2002 at 35.8 % of GDP, to be from 28 to 45.6 percentage points below its equilibrium level. This lack of financial intermediation to a large extent reflects the underdevelopment of the financial sector. As shown by Coricelli and Masten (2004), equilibrium adjustment of credit activity will increase the equilibrium GDP growth while at the same reducing growth volatility. Moreover, we explain below that real appreciation that comes as a consequence of faster growth implies also real interest rates lower than in Euro area in equilibrium. Because this is an equilibrium process, policy attempts to revert it (by means of high nominal interest rates and nominal depreciation) slow down convergence to equilibrium (see model simulations in the appendix). It is nevertheless very important, especially in the ERM II, that the policy design is such that it does not lead to overshooting of these equilibrium phenomena.

To illustrate the potential of growth in bank credit to private sector it is worth looking at the experience of non-core EU countries (Ireland, Portugal, Spain and Greece) in the years before the adoption of the Euro. IMF staff calculations (IMF, 2004) show that after 1996 all these countries have experienced a very rapid credit growth. This has been most pronounced in Portugal where from below 50% of GDP in 1990 credit to private sector has risen to roughly 130% in 2002. Credit expansion in Spain, however, was only moderate and did not deviate considerably from the average EU dynamics. The share of credit in GDP has also risen strongly in Ireland and reached levels above EU average, but these was strongly influenced by fast economic growth. Indeed, Ireland is in terms of GDP per capita at present already ranked second in the EU. Slovenia's share of private credit to GDP is roughly 35%. Greece in 1996 had a very similar share. Until 2002 it has risen to 60%. A number of factors has contributed to credit growth: reduction in interest rates, improved prospects of economic growth and deregulation of the financial market. It is important to observe that despite fast credit expansion the stability of financial system has not been endangered as the share of non-performing assets in banks' balance sheets

has not increased. Another important observation is that Euro adoption *per se* did not add an additional impetus to credit expansion (IMF, 2004).

The likelihood of credit expansion in Slovenia in the forthcoming years is high. The mere fact that current extent of financial intermediation is considerably below equilibrium warrants this result. However, interest rates have already fallen considerably in the past years, which reduce the probability of additional risk exposure in ERM II. In addition, the real estate market has experienced a steady growth in prices over the past years without having destabilizing effects on the banking sector. The disbursement of savings accumulated within the National housing saving scheme is also taking place independently of the process of Euro adoption.

Risk to overall macroeconomic stability and soundness of financial system could occur in case when credit expansion exceeds its equilibrium dynamics and leads to overheating of the economy. Such a risk can be reduced with generally sound macroeconomic framework (especially fiscal sustainability) and strong bank supervision. Membership in the EU and access to liquid international financial markets also reduces the risk. Based on this reasoning two obvious policy implications can be given. First, prudent (relatively tight) fiscal policy will be needed to maintain macroeconomic stability. Under ERM II and EMU fiscal policy in faster growing country like Slovenia will be the most powerful macroeconomic tool for mitigating private sector demand booms. Appropriate use of this tool should eliminate the need to maintain high interest rates in order to curb excessive credit expansion. It is important to emphasize, however, that fiscal policy should not attempt to fully offset the increase in private spending coming in from integration and financial deepening: eliminating and equilibrium widening of the current account deficit would close off one of the main benefits of integration, namely the ability to reallocate consumption and investment through time. Second policy implication is for the Bank of Slovenia to develop strong system of bank supervision.

## 2.4 Post-Euro risks

After the adoption of the Euro Slovenia is expected to attract further capital inflows to finance the investment demand during the catch-up. In this respect it is important that the exchange rate risk will be completely eliminated hence reducing the risks relating to capital account volatility.

The risk that will remain present due to large capital inflows is excessive accumulation of foreign liabilities in the banking sector resulting in excessive indebtedness. If such inflows are not matched by highly productive investment, asset price bubbles could potentially undermine the stability of the financial system. The experience of non-core Euro-area members after the adoption of the Euro shows a short-lived increases in demand that was mainly credit financed. This process, however, did not result in weakening

of the financial system. Despite a favorable experience of non-core EU members Slovenian economic policy needs to be aware of a still underdeveloped and shallow financial system. It is one of the crucial tasks to be implemented within the future programme of Slovene strategy of economic development 2006-2011 to speed the process of development of the financial system. As demonstrated by Coricelli and Masten (2004) this will not only increase the average growth, but also increase macroeconomic stability, which directly implies that Slovenian economy will be less vulnerable to capital account volatility. Due to relatively heterogenous industrial structure special attention in this respect should be devoted to improved financing of small and medium enterprises.

Another aspect in which further development of the financial system is of immense importance is the problem of asymmetries in the transmission mechanism of monetary policy. In the EMU monetary policy decisions will be made at central level taking into account average characteristics of economic cycle in Euro area as a whole. Asymmetries in the transmission mechanism of monetary policy between Slovenia and Euro area average will imply different effects of a given change in the ECB policy rate on Slovenian economy. For instance, if the transmission mechanism in Slovenia will be less efficient, ECB's measures will not be as stabilizing as it would be desirable, and hence cyclical fluctuations could be amplified. Asymmetries in the transmission mechanisms are determined by differences in structure and overall development of the financial system. In this respect, Slovenia needs to achieve fast convergence of the financial system in terms of depth, variety of financial assets and their term structure.

During the catch-up, business cycle fluctuation will necessarily remain to a certain extent less-than-perfectly synchronized. This will be an additional factor that will reduce the stabilization effects of ECB's monetary policy on Slovenian economy and might cause amplification of cyclical fluctuations. Two policy implications can be given to domestic economic policy in this respect. The first are further structural reforms to increase the flexibility of labor market. The second is the design of medium-term fiscal framework that enables to achieve fiscal sustainability and the effectiveness of automatic fiscal stabilizers at the same time. We turn to the latter in the next section.

# 3 Fiscal policy

## 3.1 The current situation in light of EU rules

Fiscal policy will be the only macroeconomic instrument available once Slovenia will be a member of the Eurozone. Even during the transition to EMU, and thus during the ERM II, fiscal policy will play a key role. EU fiscal rules apply immediately after entry in the EU, although new members have a derogation, that implies that there are no pecuniary penalties for

breaching the 3% budget ceiling. However, if a new member like Slovenia is considered in a position of excessive budget deficit it can be cut out from access to cohesion funds.

Applying the EU fiscal framework to Slovenia, we can conclude that Slovenia is in a relatively safe situation. Indeed, as shown in Table 1, the structural deficit allowed in order to safely remain below the 3% ceiling even in adverse cyclical conditions, is close to the actual budget deficit observed in 2002-2003.[1]

Table 1: Budget elasticities, Minimal Benchmark, CAB

| | SR | SE | SB | CSM | MB | CAB (in 2000) |
|---|---|---|---|---|---|---|
| Hungary | 0.32 | -0.08 | 0.40 | -3.02 | 0.02 | -4.10 |
| Poland | 0.29 | -0.06 | 0.36 | -3.16 | 0.16 | -4.25 |
| Slovenia | 0.34 | -0.08 | 0.42 | -0.75 | -2.24 | -0.76 |
| EU average | 0.50 | -0.10 | 0.60 | -1.60 | -1.40 | -0.60 |

Source: Coricelli and Ercolani (2002)
Legend:
SR= cyclical sensitivity of revenues
SE = cyclical sensitivity of expenditures
SB= cyclical sensitivity of the budget
CSM= cyclical safety margin
MB= minimum benchmark
CAB (in 2000)= cyclically adjusted budget

Moreover, in terms of the ratio of public debt to GDP Slovenia is well below the 60% Maastricht ceiling. From these observations one could conclude that there is no need to readdress fiscal stance in Slovenia. However, such conclusion should be qualified. First, during the transition to the Euro it would be crucial for Slovenia to reduce demand pressures and to avoid a policy mix resulting in monetary policy relatively tighter than fiscal policy. Indeed, such policy mix would imply pressure for nominal and real appreciation of the exchange rate, complicating the process of selection and maintenance of the exchange rate parity in the ERM II.

Thus, in terms of policy mix we advise ensuring tight fiscal policy during the transition to the Euro, a stance tighter than that suggested by medium-to-long term considerations. Simulations of the macro-model confirm this view, showing a significant downward pressure on domestic inflation exerted by tighter fiscal policy (see case2 in the appendix).

As regards the issue of debt, caution has to be exerted on the large room available before reaching the 60% ceiling. Particular attention should be given to the size and depth of financial markets. Although the ratio of public debt to GDP in Slovenia (at 27.8% in 2003) is much lower than that observed

[1] Similar results are obtained by the IMF (2004).

on average in EU-15 countries, if one takes the ratio of public debt to M2 the picture that emerges is rather different. In 2003 public debt to $M2$ was roughly 55% (Debt/$M3$ was roughly 40%). Such a ratio is very meaningful as with a small financial sector an expansion of government debt may have adverse effects by crowding out loans to the private sector and impeding the development of an efficient banking sector. The composition of banking assets in Slovenia is already skewed towards public sector (government and central bank bills) and a further shift towards government bonds could be harmful for the overall development of the Slovenian banking sector and the real economy.

### 3.2 Medium-term issues

Even remaining within the limits on deficit and debt imposed by EU rules, each member state has the option of following its own fiscal policy. The free work of automatic stabilizers, the cornerstone of the EU framework for fiscal policy, is not the only, or perhaps even not the most important, pillar for fiscal policy. Indeed, governments may adopt guiding principles that better reflect the objective of tax smoothing, and the government decisions in terms of the role of public investment in the economy. The principle of tax smoothing implies that with constant tax rates the government runs budget surpluses during good times and budget deficits during bad times. This is consistent with the EU view on the importance of the cyclically adjusted budget but it is not automatically obtained by observing the prescriptions of the Stability and Growth Pact. *Lacking an explicit expenditure rule, embedded in a medium-term fiscal framework, the government may be forced to opt for unplanned and costly adjustments.* Normally, the budgeting process involves forecasting GDP and, assuming a unit elasticity for revenues, revenues. Expenditure is then planned to achieve a targeted budget deficit. As a result, expenditure is a function of the expected GDP.

Box 1 describes a construction of an expenditure rule. Based on it, consider the following example. Country A in year $t$ has a balanced budget. In the following three years it plans to increase expenditure in line with the expected rate of growth of output. Assuming no change in tax rates and in tax collection, and assuming a unitary elasticity of revenue with respect to GDP, the budget is expected to remain balanced in the period of planning. Furthermore, the country was growing at 3 percent in the year *t-1*. GDP growth is expected to remain at 3 percent for the three years considered. Let us assume, however, that in reality due to adverse effects the economy slows down and the rate of growth declines to 1% per annum. The output gap in period $t$ may remain positive (actual output greater than potential). Nevertheless, the deficit deteriorates, approaching the 3 percent ceiling. From an ex ante point of view the government has maintained its promises. The cause of the deficit is a forecast error. The increase in the

budget deficit would be measured as totally due to an increase in the structural deficit. However, the government has not switched to a looser policy through discretionary measures. The first conclusion to draw is that the current framework for evaluating fiscal policy in the EU is misleading because it does not take this type of reasoning into account. According to the current apporach the EC would judge the deterioration in fiscal balances through the fact that output gap remained positive and hence would reach the conclusion that the deterioration occurred due to discretionary measures. Recently, the proposed alternative interpretation has surfaced also at the European Commission. Two papers argue that a proper definition of discretionary policy should take into account the fact that the actual budgetary process is based on expected output (Buti and Van den Noord, 2003 and Larch and Salto, 2003).

If governments were welfare maximizers, they would generally follow a fiscal rule consistent with tax smoothing. This amounts to set expenditure accordingly to the expected growth of potential output. Abstracting from measurement errors of potential output, this rule would imply a structural balanced budget and cyclical budget balances proportional to the deviation of the rate of growth from potential growth. Actual developments of GDP, and not the level of the output gap, will determine the movements in the budget balance. Expenditure will be by construction counter-cyclical, with a unitary elasticity of expenditure-to-GDP ratio with respect to the deviation of growth from potential. Although these cyclical movements of expenditure are different from what are commonly defined as automatic stabilizers, in fact they work in a similar fashion as potentially stabilizing forces.

Of course, if there is a persistent over-estimation of potential growth, there will be a persistent deficit. For this reason, a confidence interval on the calculation of potential growth should be applied and the lower end of the expected band should be chosen, ensuring a prudent management of expenditure. This error is likely to be much smaller than the forecast error on actual GDP. Neutral fiscal policy can be defined as the one consistent with the expenditure rule described in Box 1 (see also Buti and Van den Noord, 2003). The difference between actual and neutral policy can be defined as discretionary policy. Moreover, from this discretionary policy one should subtract the effect of forecast error of actual GDP to obtain what Buti and van den Noord define as "genuine" discretionary policy, as expenditure is planned ex ante on the basis of expected output.

A second issue linked to an expenditure rule is connected with the problem of investment expenditure, or the so-called "golden rule". According to those that favor the "golden rule" (Blanchard and Giavazzi,1993 for instance) public investment should not be counted in the budget deficit, as public investment will repay themselves in the future, by adding to the productive capacity of the economy. If one were to follow our suggested rule on expenditure, there would be no specific need to refer to the "golden rule", as

it is conceivable that public investment should grow in line with the growth of potential output. However, entry in the EU puts pressure on fiscal accounts both because it imposes adoption of EU regulations, especially those related to the environment, that are very costly for the budget, and because it induces higher expenditure for the local co-financing of projects financed by EU structural funds. Therefore, over the medium term, public investments, including EU-related expenditures, could grow faster than potential output.

**Box 1**

**A medium term framework with an expenditure rule**

The key idea of an expenditure fiscal rule is that primary expenditure grows in line with the growth rate of potential output, while target revenue, at unchanged tax rates, grows in line with actual output. Denoting with $y_t^*$ the growth rate of potential output and with $\pi_t^*$ the target rate of inflation, with $y_t$ actual real GDP growth and $\pi_t$ the actual inflation rate in period $i$, we can write the rule as follows. Target expenditure (share in GDP):

$$g^* = g_{t-1}\frac{1 + y_t^* + \pi_t^*}{1 + y_t + \pi_t}$$

Target revenues (percentage share in GDP):

$$\tau^* = \tau_{t-1}\frac{1 + (y_t + \pi_t)\varepsilon_\tau}{1 + y_t + \pi_t}$$

where $\varepsilon_\tau$ represents the output elasticity of revenues. Target budget deficit:

$$d^* = g^* - \tau^*$$

With an estimation of potential output that imply that deviations of actual output from potential have zero mean (such as for instance the Hodrick-Prescott filter used until recently by the EU Commission), on average actual output will be equal to its potential level. As a result, actual deficit will on average be equal to the target. On yearly basis, however, actual expenditures and revenues will be as follows:

$$\begin{aligned} \tau &= \tau_{t-1}\frac{1 + (y_t + \pi_t)\varepsilon_\tau + \tau_t^d}{1 + y_t + \pi_t} \\ g &= g_{t-1}\frac{1 + y_t^e + \pi_t^e + g_t^d}{1 + y_t + \pi_t} \end{aligned}$$

while the budget deficit, in terms of actual GDP

$$d = g - \tau$$

The expression for $g$ reflects the fact that actual expenditure depends on forecast of GDP growth $y_t^e$ and inflation $\pi_t^e$. $\tau_t^d$ is the discretionary part of taxation due to discretionary changes in tax rates that are not forseen in the target scenario $\tau^*$. Analogous is the interpretatio of the discretionary part of expenditure $g_t^d$. From the above equations it is apparent that when real GDP growth will be equal to potential GDP growth, and inflation equals its target level (that could be the ECB target rate when the country is a member of the Eurozone), actual deficit equals its target value. When output growth falls short of potential growth, there will be a budget deficit, while a surplus will emerge when output growth is above its potential growth. The rule embodies an automatic "growth dividend": in good times the country accumulate surpluses that can be spent in bad times, ensuring a stable average level of debt-to-GDP ratio. Whether the rule is consistent with the 3% Maastricht ceiling on budget deficit depends on the magnitude of the deviations of output growth from its potential rate. Considering that the ratio of revenues and expenditures to GDP in Slovenia is around 40%, the decline in growth rate has to be very large to induce a breach of the 3% ceiling. What is more important is that if the country follows the above rule it cannot be blamed for lax fiscal policy. The worsening of budget deficits will entirely results from a downturn in the economy and not from a discretionary loosening of fiscal policy. Monitoring of fiscal policy would be very simple because the rule implies specific nominal values for expenditure. In summary, the framework proposed allows for an evaluation of fiscal stance that is superior to alternative indicators such as the cyclically-adjusted budget deficit. The proposed measure of discretionary fiscal policy better reflects discretionary policy decisions by the government.

Assuming a unitary output elasticity of revenues $\varepsilon_\tau = 1$, one can identify a measure of discretionary fiscal policy as the difference between the actual and the target budget deficit $(d - d^*)$.

$$DP_t = \frac{(g_{t-1}g_t^d - \tau_{t-1}\tau_t^d) + g_{t-1}(y_t^e - y^*) + g_{t-1}(\pi_t^e - \pi_t^*)}{1 + y_t + \pi_t}$$

In Figure 1 we compare the behavior of the indicator of discretionary fiscal policy for the Euro area during the period 1999-2002 and the behavior of the cyclically-adjusted budget deficit. The period 1999-2002 is particularly important because it contains the phase of slowdown of the European economies and the worsening of budget deficits. In constructing the indicator of discretionary fiscal policy we took the projections of GDP growth and inflation of the European Commission. Therefore, expected variables were those that were accepted by the European Commission during the discussions of the Stability programs of the various countries. It is remarkable that the two measures give a radically different picture. Indeed, they are negatively related, although such a relationship may not be statistically sig-

nificant. If a change in the cyclically adjusted balance reflected a true change in discretionary policy, the two variables should be positively related, with most of the observation in the North-East and South-West quadrants. In fact, the larger number of the observations are in the other two quadrants.

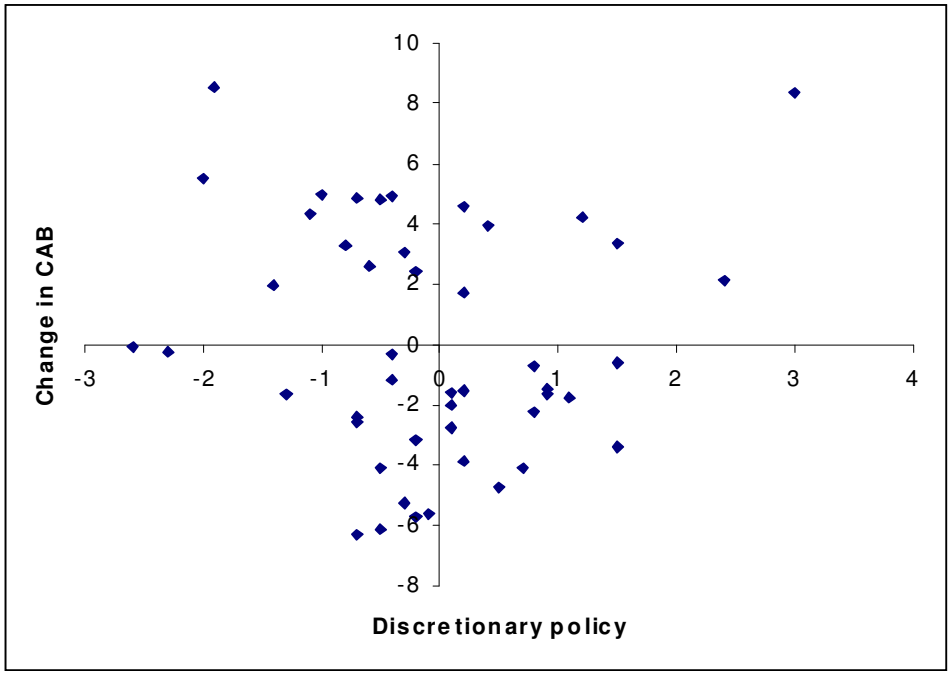


Figure 1: Discretionary policy and changes in the cyclically adjusted balance, 1999-2002

### 3.3 Implications for debt dynamics

Within the scenario suggested in Box 1, the debt-to-GDP ratio would remain stable over the cycle. There will be no tendency for persistent increase of the debt ratio. This also implies that Slovenia should not follow a "natural" tendency to converge towards the 60% ratio of debt-to-GDP. It is conceivable that entry in the EU and entry in EMU will create better conditions for private borrowing and will tend to induce some increase in consumption as people feel richer, discounting future growth. Private borrowing and external debt, that will be simply Euro-denominated debt, are thus likely to increase and this is consistent with traditional optimal inter-temporal decisions by consumers. However, there is no need for public debt to increase. In fact, fiscal prudence today will allow Slovenia to set personal and corporate tax

rates at levels lower than those in other EU members. This argument is strengthened by the adverse demographic trends that will add pressure on public finances in the long run. According to a recent IMF study (2004), between 2000 and 2030 Slovenia will display the highest (of more than 30 percentage points) increase in the dependency ratio not only of other new EU members, but even of the EU-15 countries. A proper accounting of these future effects as implicit liabilities of the government, would imply a much higher public debt for Slovenia than the one currently measured.

# 4 Summary of policy Implications

For the transition period towards the Euro, we argued that the ERM II imposes a contradictory framework for macroeconomic policies, namely the simultaneous presence of too many nominal targets. Maastricht criteria define reference values for inflation and long-term nominal interest rate, which a country should achieve in order to qualify for the adoption of the Euro. In addition, countries have to adopt a nominal exchange rate target by adopting a parity and maintaining nominal exchange rate in a narrow band around it. Achievement of all these targets simultaneously using a single instrument i.e. the short-term nominal interest rate could be a difficult task and hard to frame in a single concept of monetary policy conduct. As argued by Buiter (2004) this leads to possible situation of indeterminacy of nominal equilibria. Even if the fluctutation band for the exchange rate would be of $\pm 15\%$, the problem of inconsistency would remain. The risks are of either a tightening bias on monetary policy, geared towards maintaning the exchange rate close to the parity, or in the appreciation side of the band, or of a too loose monetary policy with consequent pressure on depreciation of the exchange rate and likely speculative attacks on the currency. The free mobility of capital will imply that the national authorities have little power to counteract both high interest rates and strong currency validated by large capital inflows, and opposite pressures. Market expectations and sentiment will crucially affect the economy during the ERM II system.

To soften these possible inconsistencies a suitably specified medium-term fiscal framework can importantly support monetary policy. In particular, a relatively tight fiscal policy can take on a part of restricitveness that would otherwise need to be achieved with monetary tightening (see cases 2 and 3 in the appendix). As a result, monetary policy can be looser and have much less problems with achievement of three nominal targets simultaneously. In addition, the adoption of a meduim-term fiscal framework can be important also after the adoption of the Euro, as fiscal policy remains the only macroeconomic instrument at disposal of the Slovenian policy-makers.

In summary, we advised on five main issues:

1. The adoption of a fiscal framework and fiscal rules, possibly based on clear expenditures rules, that will serve as main macroeconomic tool both during the ERM II period and after the adoption of the Euro.

2. Incomes policies during the ERM II as an accompanying policy ensuring a faster reduction of inflation and a softening of possible short-term adverse output effects of tight fiscal policy.

3. On financial policy, a main question is whether policies should foster the increase of Euroization before adoption? As argued by Buiter (2004) introduction of the Euro as a legal tender in the ERM II is clear sign of commitment to adopt the Euro. Such a move is allowed by the EU rules of monetary integration, because it does not involve a unilateral abolishment of own currency and it allows for determination of the central parity in the ERM II.

4. Banking supervision: As explained in section 2.3.4 good banking supervision is required to avoid potential problems of increased share of non-performing loans in banks' portfolios during the unavoidable credit expansion.

5. Finally, a key element of the overall macroeconomic strategy in the near future is the development of the financial sector. There is a large gap to be filled in terms of the depth of the financial sector. Credit to the private sector as a share of GDP is well below its "equilibrium" level. However, the issue is not simply of the quantity of credit but also of the efficiency of the banking sector. Opening up of the banking sector to foreign competition may help speeding up an increase in efficiency, and this is going to proceed much faster after the adoption of the Euro, that implies a much deeper integration of the Slovenian financial sector with that of countries in the Euro-zone. However, such opening up is not going to be sufficient to solve the problem of insufficient access to credit of small and medium enterprises. The experience of other countries shows that consolidation of the banking sector and entry of foreign banks does not improve access of SMEs to credit. This is a fundamental area for policy-makers, although it is not the focus of this report, that concentrated its attention primarily on the macroeconomic framework.

# 5 Appendix: Modelling Framework

In this section we provide minimal exposition of two economic models. The first is a simple Mundell-Fleming-Dornbusch model that we use to illustrate an important, but very often misinterpreted, fact that due to equilibrium appreciation of the real exchange rate the equilibrium real interest rates in a faster growing country is lower and not higher than the Euro-area counterpart. The second is a two sector open-economy model, which is essentially a two-sector generalization of the model used by Svensson (2000). By calibrating this model and solving for the rational expectations equilibrium using optimal policy under discretion we are able to determine relative restrictiveness of a fixed exchange rate regime in response to different type of macroeconomic shocks.

## 5.1 A simple Mundell-Fleming-Dornbusch model

Equilibrium in the money market is given by the following log-linear relation

$$m_t - p_t = -\eta i_{t+1} + \phi y_t$$

where $m_t$is the log of aggregate money stock, $p_t$ is the aggregate price level, $i_{t+1}$ is the nominal interest rate (also the central bank's instrument) and $y_t$ is aggregate output. This equilibrium relation defines demand for real money as a positive function of economic activity and negative function of the interest rate.

Aggregate demand is a function of the deviations of the real exchange rate from its equilibrium value $\overline{q}_t$.

$$y_t = \overline{y} + \delta(q_t - \overline{q}_t) \tag{1}$$

The real exchange rate is defined as

$$q_t = e_t + p_t^* - p_t \tag{2}$$

and $\overline{y}$ denotes the level of potential output. Expectations-augmented Phillips curve can be written as

$$p_{t+1} - p_t = \psi(y_t^d - \overline{y}) + (p_{t+1}^e - p_t^e) \tag{3}$$

where expected prices are those consistent with equilibrium in the goods market, and thus

$$p_t^e = e_t + p_t^* - \overline{q_t} \tag{4}$$

With this definition inflation $\pi_t$ can be rewritten as

$$\pi_{t+1} = \psi(y_t^d - \overline{y}) + \pi_{t+1}^* + (e_{t+1} - e_t) - \left(\overline{q}_{t+1} - \overline{q}_t\right) \tag{5}$$

Thus, inflation equals the rate of nominal depreciation and a term reflecting the conditions of excess demand in the goods market. If we assume perfect capital mobility, the interest rate parity holds (we neglect for the moment the risk premium)

$$i_{t+1} = i_{t+1}^* + e_{t+1} - e_t \tag{6}$$

By rearranging terms and using the various definitions we can derive the relationship between real interest rates and the real exchange rate implicit in the model

$$i_{t+1} - \pi_{t+1} - \left(i_{t+1}^* - \pi_{t+1}^*\right) = \left(\overline{q}_{t+1} - \overline{q}_t\right) - \delta\psi(q_t - \overline{q}_t) \tag{7}$$

From the above equation we observe two effects determinint the relation between domestic and foreign real interest rates. It states that if the equilibrium real exchange rate $\overline{q}_t$ appreciates and/or actual real exchange rate $q_t$ is above its long-run equilibrium level, domestic real rates will be lower than foreign real interest rates. What are the implications of this model for the discussion of the macroeconomic forces affecting monetary-exchange rate policy in Slovenia during the approach to EMU and immediately after. As stated, it is reasonable to assume that in the process of real convergence the real exchange rate in Slovenia is bound to appreciate. Thus, during such convergence

$$\overline{q}_t > \overline{q}_{t+1}$$

and thus domestic real rates in equilibrium will be lower than foreign (or in our case, Eurozone real interest rates). If domestic inflation is higher than Eurozone inflation, nominal interest rates could be higher than Euro interest rates, and still real rates lower. Higher nominal rates imply that

there is expected nominal depreciation. If the latter is eliminated, as it will be the case in the EMU, the convergence path will be as follows

$$\pi^*_{t+1} - \pi_{t+1} = \left(\overline{q}_{t+1} - \overline{q}_t\right) - \delta\psi(q_t - \overline{q}_t) \tag{8}$$

Thus, we simply have higher domestic inflation, declining over time during the convergence. Note that, irrespective of the exchange rate regime, convergence could be achieved instantaneously by picking the correct level of the nominal exchange rate. This could be the parity in the ERM and then EMU regime. If the nominal exchange rate is set at a level that ensure that the real exchange rate is in equilibrium, inflation will immediately converge to foreign inflation. Of course, there could be a movement over time of the equilibrium real exchange rate. For instance, if such equilibrium appreciates over time (because of Balassa-Samuelson effects for instance) in a way that is not predictable, there will be an equilibrium increase of domestic inflation relative to the Eurozone inflation.

Flexible exchange rates and the possibility to depreciate nominal rates, as often stated as a channel to ensure a better convergence path, would not help. As we can observe from equation 7, policy measures that want to maintain $q_t$ above its equilibrium level $\overline{q}_t$ will result in lower real interest rates in subsequent periods. Indeed, the only difference would be that domestic inflation rates would be higher than the EMU average (in excess of the workings of the Balassa-Samuelson effect). Monetary tightening would increase real interest rates only if it induces simultaneously an appreciation of the real exchange rate above its equilibrium value (and subsequent expected real depreciation). Is that consistent with the Slovenian situation? No. Fighting equilibrium tendencies is possible, however, it is questionable whether it is desirable. Let us illustrate a typical chain in emerging markets: Overtight monetary policy, maintaining high interest rates would lead to large capital inflows and appreciation of nominal exchange rate. As domestic inflation is sluggish, higher real interest rates and expected depreciation of the real exchange rates will occur. The effect would be negative pressure on domestic productive investments, higher service of public debt and likely inefficient allocation of resources flowing in via foreign investment. High risks of capital flow reversals.

Consider again equation (6). With positive nominal depreciation of the exchange rate, nominal interest rates will be higher at home. Equilibrium, that to repeat implies lower domestic real rates, would be achieved with higher domestic inflation.

Summing up, macroeconomic management during the convergence to EMU inflation rates and to equilibrium real exchange rates could be based on an early adoption of the Euro, that as stated in the objectives of the Slovenian authorities implies entry as soon as possible in the ERM II system.

Contrary to some views, maintaining flexible exchange rates to ensure adequate real interest rates seems to conflict with the objective of reducing inflation towards EMU rates. We discuss above the risks that low real interest rates can result in a credit boom and subsequently in a financial crisis. For the purpose of this exposition, it suffice to say that long-run argumentations that assume that domestic real interest rates have to be higher than abroad, as domestic marginal product of capital is higher, cannot be decisive in the analysis of the period of convergence to EMU inflation rates and the equilibrium real exchange rate. Real interest rates in the sectors that exhibit fast productivity improvements are indeed higher if measured in terms of their prices. If, commonly to the assumption of the Balassa-Samuelson effect, productivity improvement are concentrated in tradable sector, the nominal exchange rate minus the tradable inflation rate $i_{t+1} - \pi^T_{t+1/t}$ will be higher than the Eurozone level. In the nontradable sector, however, the inflation rate will exceed the inflation rate in the tradable sector and hence $i_{t+1} - \pi^N_{t+1/t}$ will be lower than the Eurozone equilibrium real interest rate. When the Balassa-Samuelson effect causes real appreciation, i.e. CPI inflation rate exceeds the one in the Euro area, the equilibrium CPI-based real interest rate $i_{t+1} - \pi^{CPI}_{t+1/t}$ will be lower than in the Euro area.

That in such circumstances it is not optimal to maintain high nominal interest rates is confirmed also in Figure 2, which presents the simulation of the model presented in the next subsection under the scenario of equilibrium real appreciation (simultaneous decrease in the terms of trade and increase in nontradable-tradable price ratio). This situation represents well the expected situation in Slovenia where, as in the upper-left corner of Figure 2, nontradable inflation (green line denoted by N inflation) on average exceeds the tradable inflation (blue line denoted by T inflation) along the adjustment path. As we can observe, the monetary policy would optimally maintain lower nominal interest rates along the adjustment path, which also implies lower real interest rates. As a consequence, the nominal exchange rate decreases (appreciation of the tolar), which also limits the deviation of the CPI inflation rate from the target.

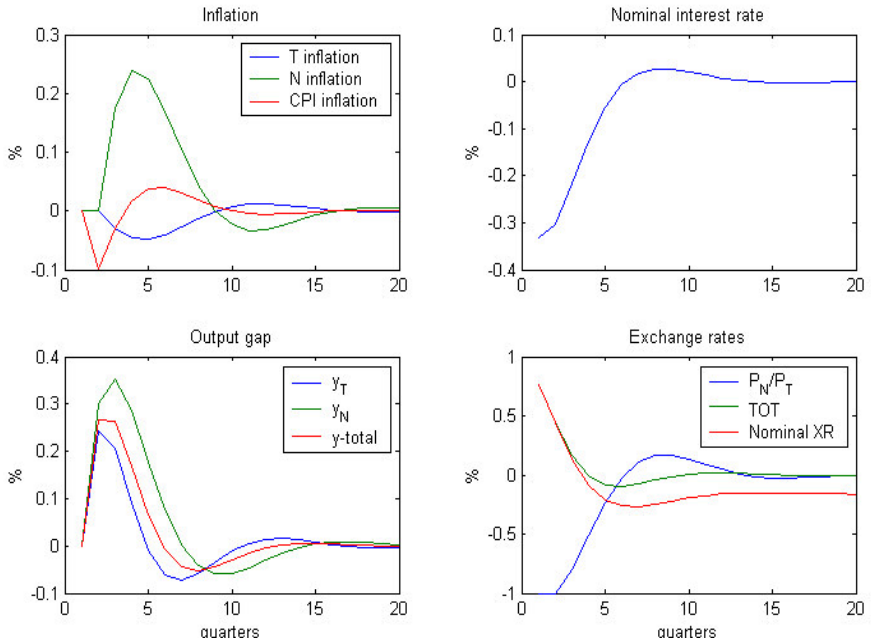


Figure 2: Optimal monetary policy with equilibrium appreciation of the real exhange rate

### 5.2 Simulations of a two-sector Svensson model[2]

The basic structure of the model relies heavily on Svensson's (2000) one-sector model that has been designed for the purposes of analyzing inflation targeting in a small open economy. It is characterized by Calvo-type nominal price rigidity (Calvo, 1983), forward and backward-looking aspects in aggregate supply and demand and due to its open-economy features the economy is exposed to stochastic disturbances originating in the rest of the world. As discussed by Svensson (2000), openness also implies that the nominal exchange rate - an inherently forward-looking variable - modifies the usual channels of monetary transmission mechanism. Basic economic equations are micro founded. In an ad hoc manner the model assumes that inflation and output can be controlled only with lags, which is consitent with empirical evidence on the effect of monetary policy. In line with empirical evidence of the effects of monetary policy it is assumed that monetary policy can effect output with one-quarter lag and domestic inflation with a two-quarter lag. In addition, the modelling framework of Svensson (2000) has been modified such that the home economy is modelled as a two-sector economy, with nontradable and tradable sector. In a multi-sector economy and presence of

[2] A precise description and derivation of all model equation can be added to the report upon request.

sector-specific shocks a given exchange rate change, which may be efficient in the case of country–level balanced shocks, can no longer guarantee optimal relative prices among domestic sectors (Tille, 2002). Thus, in presence of more goals than there are instruments nominal exchange rate flexibility need no longer be as efficient.

The model is calibrated using reasonable values for model's structural parameters found in the literature. Calibration is not intended to replicate as closely as possible the macroeconomic dynamics in Slovenia, but to give precise theoretical characterization of dynamic responses of a small open economy like Slovenia to potential macroeconomic shocks in the ERM II. We used the solution method described in Soderlind (1999) to obtain the optimal discretionary reaction of the monetary policy. Comparing the optimal response of the nominal interest rate (monetary policy instrument) to the fixed exchange rate regime like ERM II when nominal interest rates can deviate little from the levels set by the ECB (in order to keep the nominal exchange rate close to the central parity) gives us a measure of the relative monetary policy stance in ERM II compared to the optimum. Comparison to the optimal response is important because this is the case when the central bank can successfully eliminate all the risk factors.

**Case 1** ***Reduction in risk premium.*** *In this case we simulate the macroeconomic effect of the 1% decline in the risk premium. The decline is persistent (modelled as an autoregressive exogenous process with persistence parameter 0.8) in induces an inflow of capital. From Figure 3 we observe that the monetary policy would optimally accommodate the reduction in the nominal interest rate and allow the nominal exchange rate to appreciate with overshooting in the first two years. Such a shock cause temporary real appreciation (both due improvement in the terms of trade and increase in the* $P_N/P_T$ *ratio). Output expands in the nontradable sector, while it contracts in the tradable with former overcompensating the latter in the effect on total aggregate demand. Nontradable inflation is higher within the initial 2-year horizon, but becomes lower afterwards. When the policy is constrained within the ERM II it will no be able to act optimally. Within the 2-year EMR II period the nominal exchange rate would be optimally kept below the parity in order to curb inflationary pressures and potentially this could also imply a revaluation of the parity. As explained below, a tight fiscal policy could neutralize part of these pressures.*

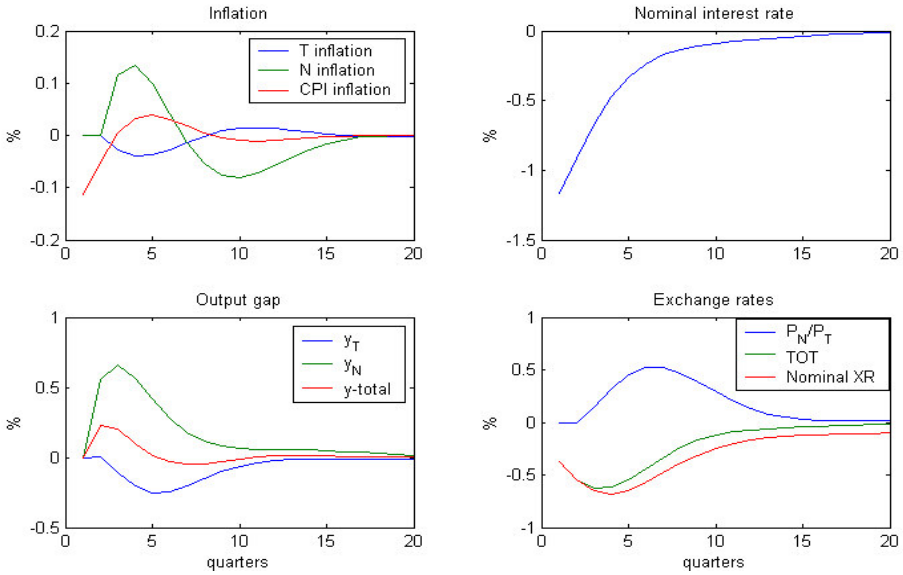


Figure 3: 1% and persitent reduction in exhange rate risk premium

**Case 2** ***Effects of tight fiscal policy.*** *Figures 4 and 5 present the dynamic effect of 1% of GDP persistent decrease in demand (due to government spending) first for all domestic goods and second for nontradable goods. The optimal response of monetary policy is first to raise interest rates, which creates expected nominal depreciation, and then lower them to reduce real interest rates and stabilize the output gap. A consequence of this monetary easing is also the increase in inflation from third quarter onwards. If in the ERM II the interest rate does not react to fiscal tightening and hence does not depreciate the currency this acts restrictively on the whole economy. Very similar conclusions about relative monetary policy stance can be reached from Figure 5, where the government limits the demand for nontradable goods. The dynamics of inflation and the output gap are obviously different, but the same implications hold for the optimal path of the nominal exchange rate.*

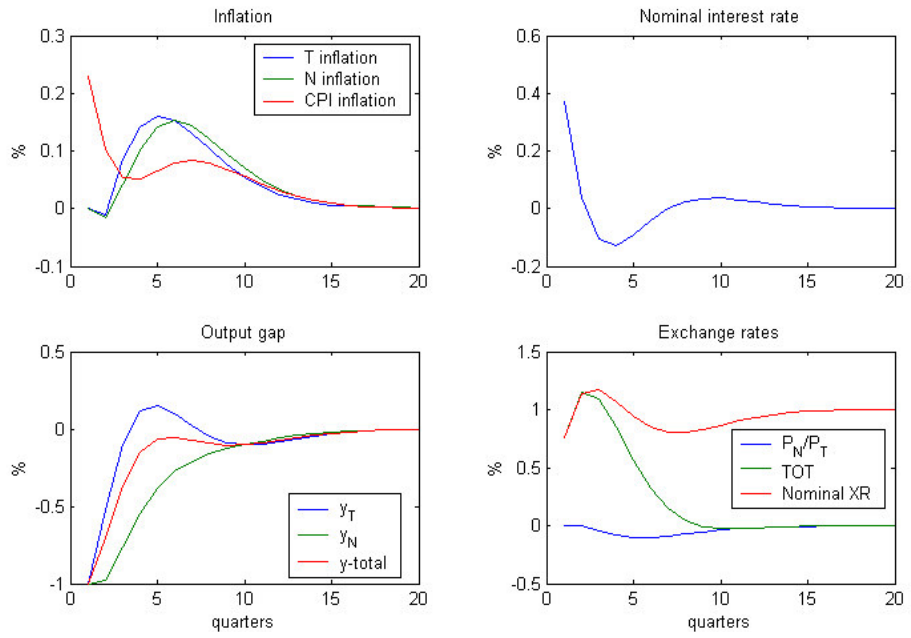


Figure 4: Negative demand shock (balanced and persistent)

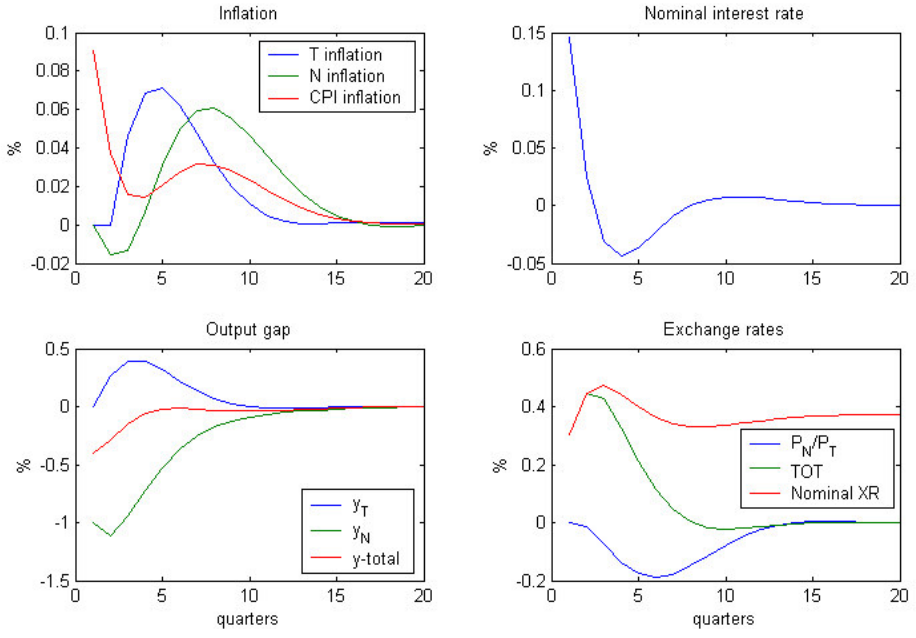


Figure 5: Negative demand shock for nontradable goods

**Case 3** ***Fiscal tightening as a response to capital inflow.*** *This case present a tentative attempt of fiscal policy to respond to appreciation pressures that are caused by the reduction in risk premium and ensuing capital inflow (see Figure 3). The experiment is constructed as follows: In response to a 1% reduction in risk premium that only gradually returns to its previous level (persistence parameter set to 0.8, which means that after two years it is still 0.2 percentage points below the initial level) the government reduces demand for nontradable goods by 0.8% (roughly 0.3% decrease in aggregate demand) and only gradually returns it back to previous level (after two years it is still slightly (0.07% ) below equilibrium). If we compare the economic dynamics presented in Figure 6 to Figure 3 we observe that even though the responses of the nominal interest rate are very similar (accommodating the capital inflow) the response of the nominal exchange rate is quite different. A relatively tight fiscal policy reduces the pressure to appreciate with the 2-year ERM II horizon as the nominal exchange rate virtually reverts to the parity.*

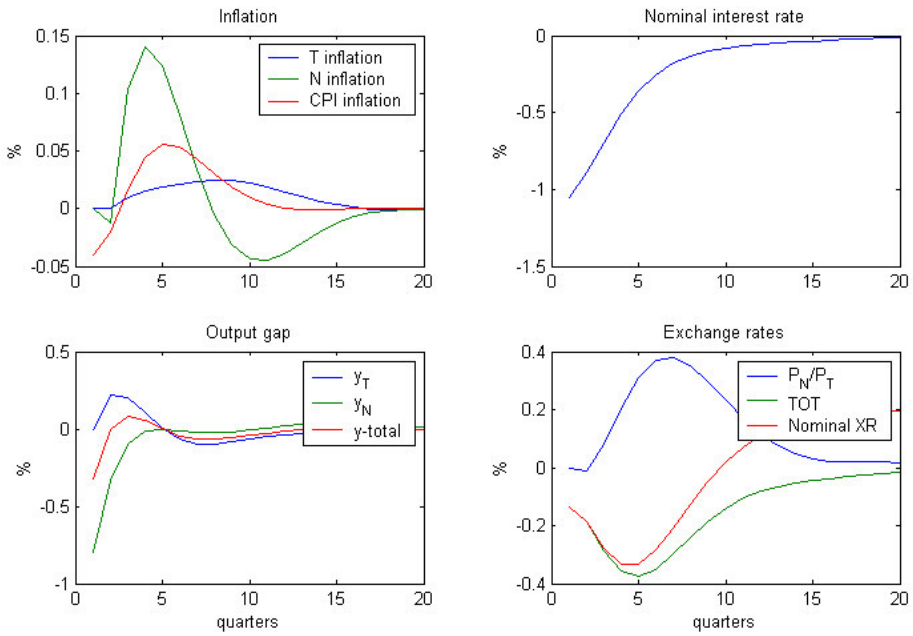


Figure 6: Simultaneous reduction in risk premium and fiscal tightening

**Case 4** ***Cost-push inflation outburst.*** *This simulation illustrates one of the important risks in the ERM II that the policy should try to avoid with appropriate income policy. Figure 7 illustrates the responses to a 1% pure cost-push shock. We can understand such a shock, for example, as sudden wage increases due to aggressive trade unions. To neutralize the*

*adverse effects on inflation the central bank would optimally increase the interest rates and keep them higher for roughly two years. This dampens economic growth and consequently inflation. In the ERM II such periods of tight monetary policy that wants to bring inflation down to Maastricht level should be avoided as it could lead also to capital inflows and problems related to reduced competitiveness. Moreover, the optimal dynamics of the nominal exchange rate are inconsistent with the requirement of the ERM II that does not allow for an upward adjustment of the central parity. A policy implication that can be drawn from this is that the government should use the instruments of income policy and bargaining influence in order to avoid unnecessary wage pressures and inflation outbursts within the ERM II and EMU. Only in such a case there will be little need for the monetary policy to be overly tight and Slovenia will avoid problems with fulfilling the Maastricht criteria. Hochreiter and Tavlas (2004) describe the experience of Austria in their run-up to EMU, which has resorted to this type of income policies in order to avoid inflationary pressures, problems with fiscal imbalances and deterioration of external competitiveness.*

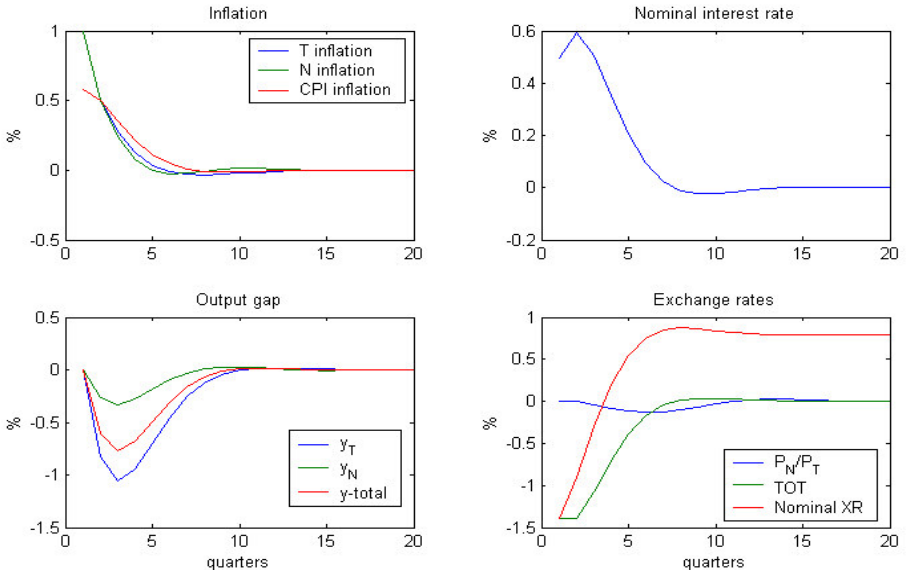


Figure 7: Cost-push shock

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