The Czech Republic On The Road To The Euro-zone - Nominal Covergence Criteria

Tuleja, Pavel

Slezská univerzita v Opavě, Obchodně podnikatelská fakulta v Karviné

20 October 2005

THE CZECH REPUBLIC ON THE ROAD TO THE EURO-ZONE – NOMINAL CONVERGENCE CRITERIA[1]

Pavel Tuleja
Silesian University in Opava
School of Business Administration in Karvina
Derpatment of Economy
Univerzitní náměstí 1934/3
733 40 Karviná
Czech Republic
e-mail: tuleja@opf.slu.cz
telephone: +420 596 398 259

Abstract

Prior to its EU entry, the Czech Republic accepted the obligation to exert maximum efforts in order to fulfill conditions in the possible shortest time, on whose basis it will be able to accept the common European currency – the Euro. During the proper examination of the readiness of the Czech Republic for fulfilling this criterion one has to take into account both prerequisites, which are necessary for the integration of the Czech Republic into the Euro-zone, and the dispositions of the Czech economy to maintain positive effects arising from this membership. Since such a complex analysis concerning the preparedness of the Czech Republic for accepting the Euro would be rather extensive, we paid our attention merely to the examination of the extent, to which the Czech economy meets Maastricht nominal convergence criteria. Based on the analysis, we come to a conclusion that the Czech economy will not be able to meet this obligation in the following three years, mainly due to high deficits of public finances. In the last part, based on our estimates we claim that the Czech Republic could become a member state of the Euro-zone as early as in 2010.

Keywords: exchange rate stability criterion; government debt criterion; government deficit criterion; long term interest rate criterion; price stability criterion

---

1. Maastricht nominal convergence criteria

Although the Czech Republic became a member country of the European Union on May 1st 2004, one cannot name this momentous day as a moment, at which the process of the European integration was definitely concluded. Prior to the EC entry, the Czech Republic, likewise the remaining nine new member states, pledged that following its entry it would exert maximum efforts in order to comply with the conditions in the possible shortest time too, on which basis it would be able to accept the common currency – the Euro. If we are to evaluate the preparedness of the Czech economy for fulfilling this objective, then we have to take into account both the prerequisites, which are inevitable for the integration of the Czech Republic into the Euro-zone (Maastricht nominal convergence criteria) and its dispositions for maintaining positive effects resulting from this membership (compatibility of the Czech economy with the economies of the Euro-zone). Since such a complex analysis concerning the preparedness of the Czech Republic for accepting the Euro would be rather extensive, we will pay our attention in this article merely to the examination of the extent, to which the Czech economy fulfils Maastricht nominal convergence criteria (hereafter also MNCC).

Event though the professional public is well acquainted with the substance of MNCC, at the beginning it appears to us as appropriate to mention that one standardly distinguishes between <u>monetary nominal convergence criteria,</u> which determine the maximum permissible level of the growth rate of the consumer prices, long term interest rates, and the movement of the exchange rate around its central parity and between <u>fiscal nominal convergence criteria,</u> which determine the maximum permissible level of government deficit and government debt. It is evident from the above stated that while monetary criteria in the case of the Czech Republic are primarily affected by the monetary policy of the Czech National Bank, the level of the fulfillment of fiscal criteria is mainly influenced by the fiscal policy of the Czech Government. At the same time, we would like to remind that the main reason for accepting these criteria was an effort of the EU member states in 1992 to prevent from the fact so that countries, whose economic instability would endanger the stability of the newly arising common European currency, would enter the future Economic and Monetary Union (hereafter EMU).

2. Monetary Maastricht nominal convergence criteria

2.1. *Price stability criterion*

According to the Protocol of Convergence Criteria (hereafter also "Protocol"), whose version proceeds from Article 121 of the Treaty on the Establishment of the European Community (hereafter also "Treaty"), the member country complies with price stability criteria if … *in the long term, it shows a sustainable price stability and the average inflation rate, which is measured in the course of one year prior to the examination carried out, does not exceed more than 1.5 percentage point of the inflation rate of three member states at the most, which have achieved the best results in the area of the monetary stability.* (ECB) Based on that definition, the European Central Bank determines then the reference value of the inflation criterion as … *the non-weighted arithmetic average of the inflation rate in three countries, which have reached the lowest inflation rate, provided that this rate is in accordance with the requirements of the price stability.* (ECB) The own inflation in individual countries is measured by means of the current average of the harmonized index of the consumer prices for over twelve months in comparison with the previous average of twelve months (HICP 12:12).

Table 1 – The price stability criterion for the Czech Republic in the years 1999-2007 (HICP; average of the last twelve months against the average of the previous twelve months; %)

Indicator	1999	2000	2001	2002	2003	2004	2005^p	2006^p	2007^p
Inflation rate	1.80	3.90	4.50	1.40	-0.10	2.60	2.56	1.99	1.24
Criterion I	2.07	2.67	3.13	2.90	2.70	2.17	2.09	1.97	1.25
Criterion II	2.07	2.67	3.13	2.90	2.70	2.17	2.09	1.97	2.01
Criterion III	3.00	3.37	2.77	3.43	3.63	3.37	3.17	3.12	3.22
Criterion I	yes	no	no	yes	yes	no	no	no	yes
Criterion II	yes	no	no	yes	yes	no	no	no	yes
Criterion III	yes	no	no	yes	yes	yes	yes	yes	yes

Source: Eurostat and one's own calculation
Note: Data concerning the development of the inflation rate and of the price stability criteria for the years 2005-2007 are the author's own estimates based on the analysis of the respective time series by means of the model ARIMA. They years, for which data was estimated, are marked with a symbol P.

1941

As it is apparent from the above stated, the reference value of the inflation rate is not unequivocally determined within the Protocol, in consequence of which this criterion is a target for member countries of the Economic and Monetary Union, and it is constantly changeable. Moreover, it is necessary to state that the relatively vague definition of this criterion has enabled the economists to interpret the "lowest inflation rate, which is in accordance with the requirements of the price stability" in several possible ways.   If we proceed from these opinions, then we can determine the reference value of the inflation rate as an arithmetic average of the inflation rate, which has been reached:

- In three countries of the European Union with the lowest inflation rate (see criterion I in table 1),

- In three countries of the European Union with the lowest inflation rate, at the same time the countries are not included in this group, where this rate has achieved negative values   (see criterion II in table 1)

Or in three countries of the European Union, which meet the requirement of the price stability best with the low inflation rate at present time (see criterion III in table 1).

It proceeds from the data showed in table 1 that if we did not take into account only the low inflation rate when determining the reference value but also the ability of the country to meet the requirement for the price stability (criterion III), then the Czech Republic would do well as for fulfilling the corresponding convergence criterion with a considerable large reserve as early as in 2002. If we proceed from another our prediction of the development of the inflation rate for the years 2005-2007, one can assume then that by fulfilling this criterion the Czech economy should not have any problems in the future either. Furthermore, it is necessary to note that this reference value corresponds to the inflation target as well, which the Czech National Bank determined with the national index of the consumer prices for this period (the target was set at the level of 3%).

Figure 1 – The inflation rate measured by HICP (12:12) and by the price stability criterion (criterion II) in the Czech Republic in the years 1996-2007
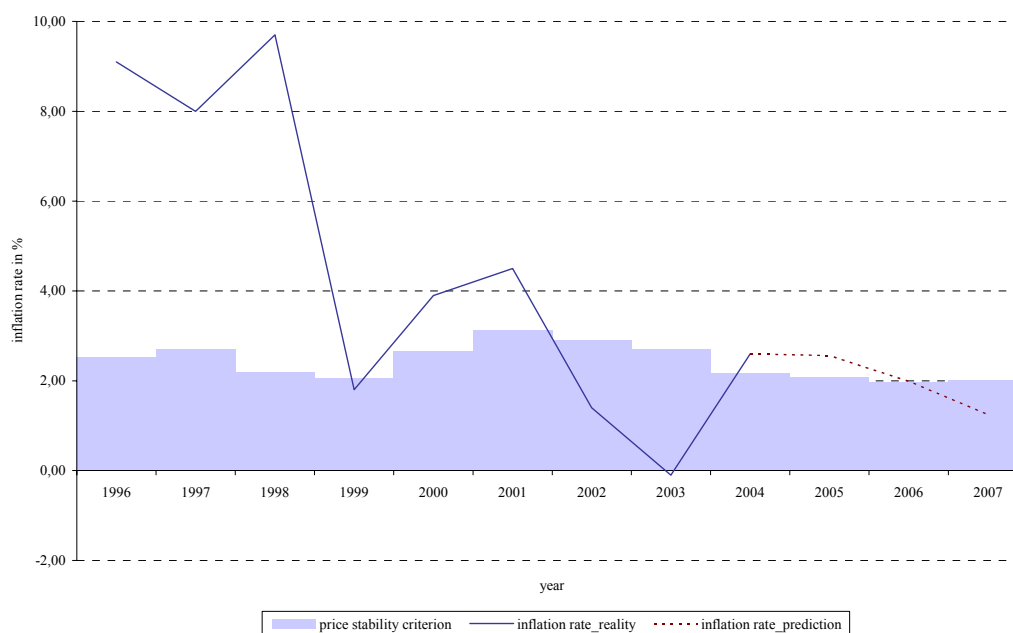
Source: Eurostat and one's own calculation

We will arrive at somewhat different conclusions then if we consider as relevant, similarly like the Ministry of Finance of the Czech Republic, the criterion, which takes into account the average inflation rate of three countries with the lowest positive inflation (criterion II). As it is obvious from table 1, in that case, according to our projection, the Czech Republic would be able to fulfill the inflation criterion for accepting the Euro only in 2007, moreover, in 2006 it would relatively and more noticeably come closer to its reference value.

In the case of the price stability criterion, we have to say that even though the Czech Republic has maintained the standard of the low inflation economy since 1999, one cannot rule out the Czech Republic might have certain problems as for fulfilling this criterion in the coming years. The estimate of the potential product[2] leads us primarily to this conclusion, from which arises that the Czech economy has been in the expansion production

---

[2] We have estimated the value of the potential product by means of Hodrick-Prescott's filter, which we have applied to the time series containing the annual seasonally cleaned data concerning the development of gross national product in the stable prices of the year 1995.

gap since 2003, and at the same time the value of GAP rose by 2,69 p. p. in the years 2003-2004. Should this development continue, one can relatively expect significant inflation pressures in the Czech Republic, which could be the cause of not fulfilling this criterion.

2.2 Long term interest rate criterion

It is evident from Article 4 of the Protocol of Convergence Criteria that a member country of the Economic and Monetary Union fulfils the long term interest rate criterion only if … *in the course of one year, prior to the examination, the average long term interest rate of the member state did not exceed 2 percentage points of the interest rate of three member states at the most, which have reached the best results in the area of the price stability.* (ECB) In that case, the European Central Bank determines the reference value of this criterion as *…the non-weighted arithmetic average of the long term interest rates in three countries, which have attained the lowest inflation rate.* (ECB) In this case, interest rates from the long term government bonds or comparable securities are considered as corresponding and at the same time, the European Central Bank, for calculating the long term interest rare, considers as relevant the proceeds up to the date of maturity of ten year government bonds on the secondary market.

Shall we in this case also consider the three countries with the lowest inflation rate as the countries, which have achieved the lowest positive inflation in the given period, subsequently we come to a conclusion that in the case of this criterion, the Czech Republic had no problems fulfilling it in the past, simultaneously, the same development, according to our prediction, we are expecting in the coming years. In the case of this convergence criterion, we can determine trust or distrust of the financial markets in stabilizing the Czech Republic finances as a risk factor. Should the trust be violated in the coming three years, then we can rather expect the long interest rates considerably to grow in that period.

Table 2 – The criterion of the long term interest rates for the Czech Republic in the years 1999-2007 (10 year interest rates from the government bonds on the secondary market; the average over the last twelve months; %)

Indicator	1999	2000	2001	2002	2003	2004	2005^p	2006^p	2007^p
Interest rates	.	6.29	6.29	4.85	4.10	4.75	3.16	2.61	2.05
Criterion	.	6.97	6.91	6.88	6.11	6.27	5.21	4.09	4.33
Criterion	.	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*

Source: Eurostat and one's own calculation

1944

Note: Data concerning the development of the long term interest rates and the development of the long term interest rate criterion for the years 2005-2007 are the author's own estimates based on the analysis of the respective time series by means of the model ARIMA. They years, for which data was estimated, are marked with a symbol P.

Figure 2 – Ten year interest rates from the government bonds on the secondary market and the long term interest rate criterion in the Czech Republic in the years 2000-2007
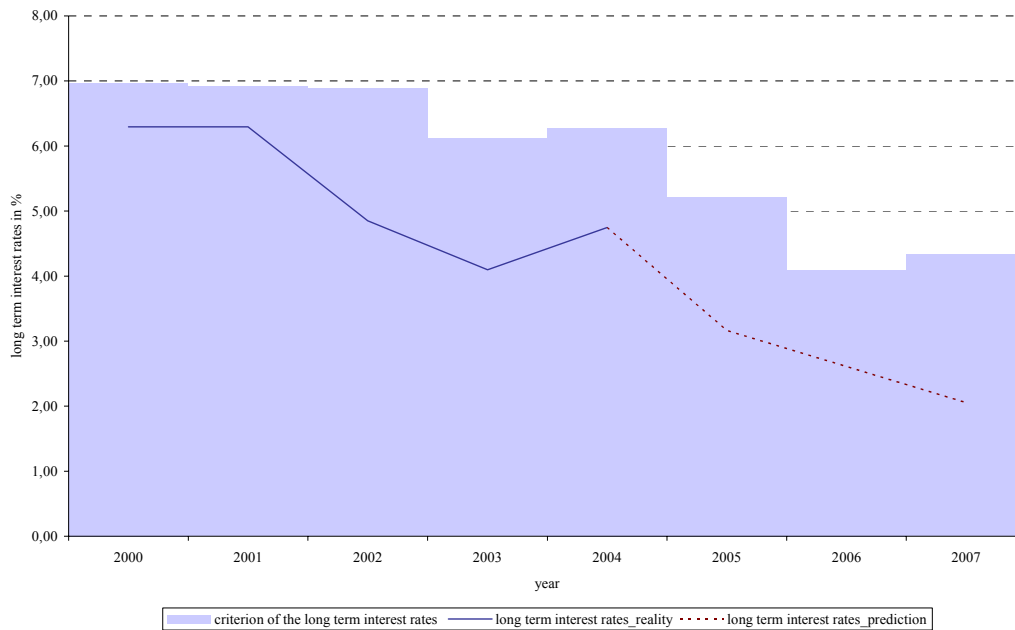
Source: Eurostat and one's own calculation

2.3 Exchange rate stability criterion

Only that member state fulfills the exchange rate stability criterion, which according to the Protocol of Convergence Criteria … *has observed the fluctuation range stipulated by the mechanism of the exchange rates of the European Monetary System at least for the last two years, and the exchange rate has not been exposed to hard pressures…,* simultaneously what is applicable is that in that given period it should not have … *devalued the bilateral average rate of its own currency at its own suggestion against the currency of any other member state.* (ECB) It unequivocally follows from this definition that the respective country is able to comply with the exchange rate stability criterion only if:

- It has been in the last two years, prior to the examination carried out, a participator of the European mechanism of exchange rates, which has been the ERM II mechanism since January, 1999,

- Its exchange rate follows the nominal fluctuation range, i.e. if it moves within this mechanism near its central parity

- And the development of the exchange rate interventions and short term interest differentials against the Euro-zone do not lead to distinct tensions or strong pressures on this exchange rate.

Table 3 – The exchange rate stability criterion for the Czech Republic in the years 1999-2007 (CZK/EUR, CZK/ECU; December of the given year; fluctuation range ±15% from central parity)

Indicator	1999	2000	2001	2002	2003	2004	2005[p]	2006[p]	2007[p]
Exchange rate	36,66	36,66	36,66	36,66	36,66	36,66	36,66	36,66	36,66
Depreciation (-15%)	27,09	27,09	27,09	27,09	27,09	27,09	27,09	27,09	27,09
Depreciation (-2,25%)	32,59	32,59	32,59	32,59	32,59	32,59	32,59	32,59	32,59
Depreciation +15%)	28,03	28,03	28,03	28,03	28,03	28,03	28,03	28,03	28,03

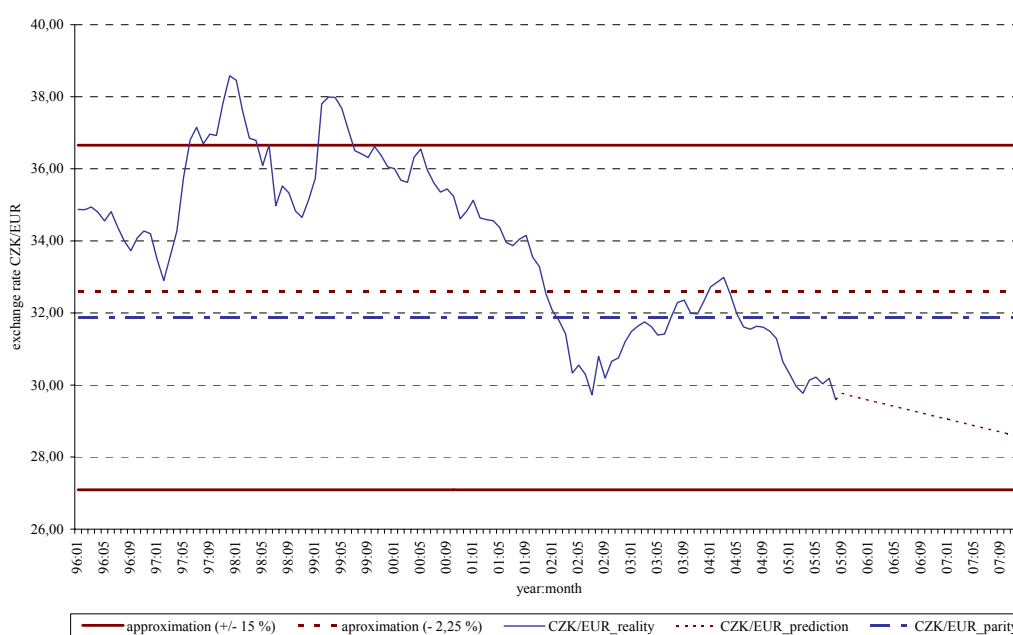*Source: Eurostat and one's own calculation*

Note: Data concerning the development of the exchange rate and the development of the exchange rate stability criterion for the years 2005-2007 are the author's own estimates based on the analysis of the respective time series by means of the model ARIMA. They years, for which data was estimated, are marked with a symbol P.

We consider the determination of the "normal fluctuation range" as the main methodological problem of the exchange rate stability criterion, which can be defined in this case by one of the three following manners:

- The first possibility is to determine the normal fluctuation range in a way, as it was intended at the time of drawing up the Treaty on the Establishment of the European Community, i.e. as a range determined by the variance of ±2,25 % from the bilateral central parity, and exceptionally, this variance can reach up to ±6,00 %,

- The second possibility is to proceed from the decision, which the Council EMI accepted in August, 1993 and on which basis, the fluctuation range was extended to ±15,0 %

- And the last, the third possibility is to accede to a compromise solution, which is referred to by some economists of ČSOB and within which the fluctuation range is determined as a asymmetric range, in which a bigger space for depreciation is given for the currency of the candidate country (appreciation variance is set to +15%) and simultaneously there is a smaller space for depreciation, when the respective variance reaches only - 2,25%.

Figure 3 – The nominal exchange rate CZK/EUR (ECU) and the exchange rate stability criterion in the Czech Republic in the years 1996-2007

Source: Eurostat and one's own calculation

Note: The central parity was estimated by the author by means of the average monthly exchange rate of CZK against Euro for the period of 1996-2007.

If we proceed from the above given, it is apparent that in the case of the Czech Republic, formally, we are not able to assess the level of fulfilling the exchange rate stability criterion at present. The main reason for this argument is the non-participation of the Czech Republic in the ERM II mechanism and thus there is the non-existence of the officially determined central parity of the exchange rate of CZK/EUR. Still, if we wanted to partially assess the chances of the Czech economy for fulfilling this criterion, then we could use for these purposes for instance the central parity stimulated

by means of the average of the exchange rates of CZK/EUR for the years 2003-2004. As it obvious from figure 3, since the beginning of the year 2002 the fluctuation of the currency exchange rate of CZK against Euro has been, apart from the first quarter 2004, smaller than the hypothetical asymmetric range [+15 %; -2,25 %], and at present, the significant variances of this exchange rate are taking place from its central parity. If we follow strictly the above stated conditions in this situation, then we can state that the Czech economy could have certain problems regarding its fulfilling the exchange rate stability criterion in the future. It all depends on the fact how the European Commission will view this criterion as well as the European Central Bank.

3. Fiscal Maastricht nominal convergence criteria

3.1 Government deficit criterion

The Treaty on the Establishment of the European Union in Article 121 requires member states to strive for … *a long term sustainable state of public finances apparent from the state of public budgets, which do show an excessive deficit ...,* and simultaneously, as an excessive deficit is considered such an deficit, according to which *... a ratio of the planned and actual deficit of public finances to the gross domestic product exceeds the reference value (stipulated in the Protocol regarding the excessive deficit procedure of 3 % GDP)....* (ECB) A certain exception of fulfilling this criterion can be made to such member states, where:

- The ratio of the deficit of public finances to GDP markedly and continuously decreased in the past, and in consequence of this fact it reached the maximum, which was close to its reference value at the given moment,

- Or in the case where the exceeding of the reference value took place entirely exceptionally, and at the same time temporarily. In that case, it is assumed that the actual value will be close to the reference value of the given criterion.

The government deficit is then monitored in particular countries by means of the pure loan of the government institution sector, whose value is calculated on the basis of the methodology of the system of national accounts ESA 95.

Speaking of the government deficit criterion one mustn't forget the meeting of the European Council of Finance Ministers (ECOFIN), which took place in March, this year, and in which the representatives of ECOFIN agreed to some partial amendments of the "Stability and Growth Pact", which

1948

significantly affected the conditions, under which a member state is able to fulfill this criterion. According to these conclusions:

- ECOFIN and the European Committee, following the implementation of the compulsory fund system by the member state, can take into account net costs connected with this reform when assessing the development of the government deficit. This consideration will be then applicable in the first five years following the introduction of the reform and will have a regressive character, i.e. 100% of net costs could be taken into account in the first year, and the volume will be gradually decreasing to 80, 60, 40 and 20 % in the coming four years,

- The member states are bound to observe the middle term target, what means the maintaining of almost balanced or surplus state budget and further a share of periodically cleaned government indebtedness in GDP can reach -1% in the long term period in countries with low indebtedness and high potential growth, whereas in countries with high indebtedness and low potential growth, the state budget must be balanced or surplus,

- The Euro-zone member states and ERM II ought to base their predictions concerning the development in the area of public budgets on the same assumptions as the European Committee.

Table 4 – The government deficit criterion for the Czech Republic in the years 1999-2007 (pure loans of the government institution sector in the methodology ESA 95; December of the given year; %)

| Indicator	1999	2000	2001	2002	2003	2004	2005^p	2006^p	2007^p
Deficit / GDP	-3.65	-3.65	-5.92	-6.75	-11.65	-3.02	-4.15	-2.39	-2.10
Criterion	-3.00	-3.00	-3.00	-3.00	-3.00	-3.00	-3.00	-3.00	-3.00
Criterion	no	no	no	no	no	no	no	yes	yes

Source: One's own calculation based on data of CSO

Note: Data concerning the development of the share of the government deficit in GDP for the years 2005-2007 are the author's own estimates based on the analysis of the respective time series by means of the model ARIMA. They years, for which data was estimated, are marked with a symbol P.

As it obvious from data depicted in figure 4, the Czech Republic has not been able successfully to fulfill this government deficit criterion since 1998 up to now. In this connection, one has to state that the Czech Republic

will be in all likelihood confronted with these problems in the following three years, furthermore our conclusion confirms the obligation of the Czech Government to lower public finance deficit in the years 2005-2007 from a forecast figure of -4,7 % in 2005 to the final figure of -3,3 % in 2007. It is apparent from the given that the first year, when the Czech economy ought to be able to fulfill the government deficit criterion should be in 2008. As it obvious from the above stated our prognosis of the development of government deficit can be referred to as very optimistic in this case.

Figure 4 – The share of pure loans of government institutions (methodology ESA 95) in GDP and the government deficit criterion for the Czech Republic in the years 1996-2007
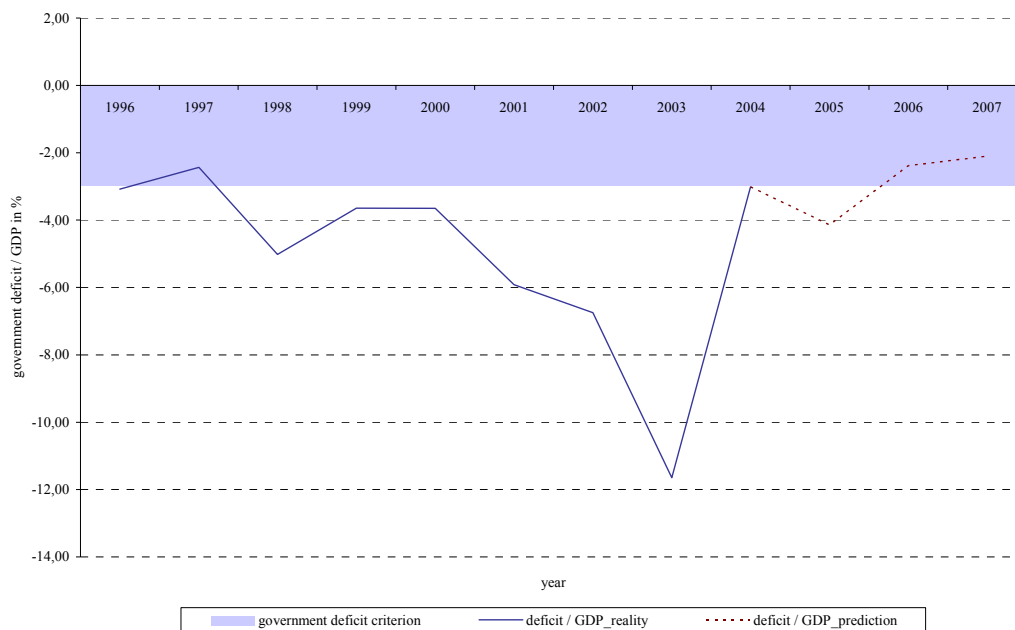
Source: OECD and ones' own calculation

3.2 Government debt criterion

Article 104 of the Treaty on the Establishment of the European Union refers to the fact that … *an EU member state does not meet the requirements of budget discipline ... if … a ratio of public indebtedness to gross domestic product exceeds the recommended limit (stipulated in the excessive deficit procedure of the Protocol as 60% of GDP) ...* (ECB) Similarly, as in the case of government deficit, an exception of the government debt criterion can be made to a respective member state only at the moment, when this ratio of public indebtedness to GDP is sufficiently decreasing and at a satisfactory

pace it is nearing the determined reference value. As government debt is considered total gross debt of the government institution sector, which is in this case calculated on the basis of the methodology of national accounts ESA 95.

If we proceed from data depicted in table 5, then it is apparent that the government debt criterion was and in all probability will be the only criterion, with which the Czech Republic will not have any more serious problems in the future.

Table 5 – The government debt criterion for the Czech Republic in the years 1999-2007 (total gross debt of the government institution sector in the methodology ESA 95; December of the given year; %)

Indicator	1999	2000	2001	2002	2003	2004	2005^p	2006^p	2007^p
Debt / GDP	13.35	18.24	27.21	30.66	38.34	37.39	37.19	39.38	41.97
Criterion	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
Criterion	yes	yes	yes	yes	yes	yes	yes	yes	yes

Source: OECD and one's own calculation

Note: Data concerning the development of the share of government debt in gross national product for the years 2005-2007 are the author's own estimates based on the analysis of the respective time series by means of the model ARIMA. They years, for which data was estimated, are marked with a symbol P.

Figure 5 – The share of total gross debt of the government institution sector (ESA95) in GDP and the government debt criterion in the Czech Republic in the years 1997-2007
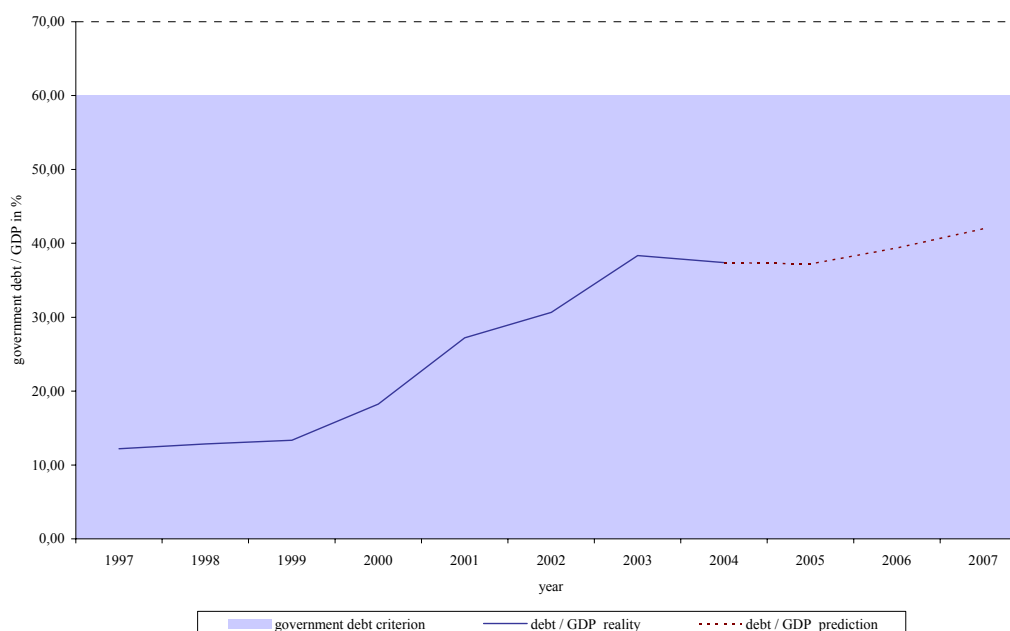
Source: OECD and one's own calculation

4. Conclusion

As we have already stated at the beginning of this paper, the Czech Republic, prior to its EU entry, accepted an obligation to exert maximum efforts in order to fulfill conditions in the possibly shortest time, on whose basis it will be possible to accept the common European currency – the Euro. If we are to state whether the Czech Republic is capable of meeting the obligation, then we have to state that in all probability it will not, mainly due to the inability to fulfill the public deficit criterion in the long run. If we proceed from the assumption that the Czech economy could be able to fulfill this criterion as early as in 2008, then we could expect that in the same year, the Czech Republic would enter the exchange rate mechanism ERM II, what would mean that the Czech Republic would become a member state of the Euro-zone not earlier than in 2010.

Table 6 – The fulfillment of Maastricht nominal convergence criteria by the Czech Republic in the years 1999-2007

Indicator	1999	2000	2001	2002	2003	2004	2005[p]	2006[p]	2007[p]
Price stability	yes	no	no	yes	yes	no	no	no	yes
Long term interest rates	.	yes	yes	yes	yes	yes	yes	yes	yes
Exchange rate	Czech Republic was not a member of ERM II						.	.	.
Government deficit	no	no	no	no	no	no	no	yes	yes
Government debt	yes	yes	yes	yes	yes	yes	yes	yes	yes

Source: Eurostat, OECD and one's own calculation

Note: They years, for which data was estimated, are marked with a symbol P.

References

[1] ČSOB: *How decisive are Maastricht criteria?* Economic monthly journal. November 2004. Access from: <http://www.csob.cz/ft/zpr.asp? prmKod=FT1.5&archiv=archiv>.

[2] ČSOB: *Reform of PRS: let's look for a devil in details.* Economic monthly journal. March 2005. Access from: <http://www.csob.cz/ft/zpr.asp? prmKod=FT1.5&archiv=archive>.

[3] ČSOB: *Welcome to the club!* Economic monthly journal. April 2004. Access from: < http://www.csob.cz/ft/zpr.asp? prmKod=FT1.5&archiv=archive>.

[4] ČSÚ: *Annual national accounts*. Access from: <http://dw.czso.cz/pls/rocenka/ rocenka.indexnu>.

[5] ECB: *ECB, ESCB and Euro-system*. Access from: <http://www.ecb.int/ecb/orga/ escb/html/ index.cs.html>.

[6] EUROSTAT: *Eurostat data*. Access from: <http://epp.eurostat.cec.eu.int/portal/ page?_pageid=1996,45323734&_dad=portal&_schema=PORTAL&scree n=welcomeref&open=/&product=EU_MAIN_TREE&depth=1>.

[7] MF ČR: *The assessment of the fulfillment of Maastricht convergence criteria and stages of the economic compatibility of the Czech Republic*

with the Euro-zone. Access from: <http://www.mfcr.cz/cps/rde/xchg/mfcr/ hs.xsl/eu_dokumenty_14184.html>.

[8] OECD: *OECD Economic Outlook Statistics and Projections. Database DSI Campus Solution*. Access from: <http://195.145.59.167/ISAPI/DBDemo.Dll/Indicators?ID= D1E54AA210134CFAADA98A7F47637023&DB=OECD&Database=01 .2.3&Text=OECD+Economic+Outlook+Statistics+and+Projections&Nr= 3>.

[9] TŮMA, Z.: *The Czech economy and Euro-zone entry*. Access from: < http://www.cnb.cz/pdf/ tuma_hnclub_bratislava_1005.pdf>.