MACROECONOMIC FORECASTS AT THE MOF – A LOOK INTO THE REAR-VIEW MIRROR

The first experimental publication, which summarised past and expected future development of basic economic indicators, was published by the Ministry of Finance of the Czech Republic in November 1995. The foundation of this traditional publication was thus laid, and it has gradually become a knowledge source for the general Czech and foreign economic public.

Sources of tables and graphs: Ministry of Finance of the Czech Republic, European Commission, OECD, IMF, MoF estimates.

The already 16-year history of these regular quarterly forecasts provides quality source material for evaluating their success. Such assessment can help users comprehend how precisely it is possible to identify future development of basic macroeconomic indicators over various time horizons.

At the same time, it is necessary to realise that fundamental changes in the Czech economy occurred during the evaluated period, as it shifted from a volatile transition economy to a more or less stable market economy within the EU. A similar shift occurred in the statistical characterisation of the economic reality, and even in the prognostic methods and procedures used. Thus we have divided the period from 1995 to 2010 into two periods of equal length (1995–2002 and 2003–2010) in order also to be able to evaluate how successfully the forecasts have developed over time.

All macroeconomic forecasts are by their nature conditioned upon the assumptions adopted regarding the development of exogenous factors. Some of these cannot be predicted – natural disasters, development of financial markets including commodity prices, or changes of political environment both within and outside the Czech Republic. Others, e.g. impact of structural policy measures, are very difficult to quantify. Revisions to the underlying data for past periods, which especially concern the most important indicators of the national system of accounts, represent another significant source of uncertainty.

Identifying the impacts of these factors which arise externally and are entirely beyond the forecast team's control, however, is difficult, if not impossible. In accordance with the literature (see list), we therefore exclude these factors from the analysis.

Basic terms

The success of macroeconomic forecasts is usually evaluated using several basic statistics – average forecasting error, mean absolute error, and Theil's inequality coefficient.

Average forecasting error (AFE) indicates forecasts' deviation. Positive AFE values indicate systematic or prevalent "over-estimation" in the forecasts, while negative values indicate "under-estimation". AFE is defined by the following relationship:

$$AFE = \frac{\sum_{t=1}^{T}(F_t - A_t)}{T}$$, where A_t is the actual value at time t, F_t is the forecast for the period t and T is the number of observations.

Mean absolute error (MAE) expresses the average absolute error of the forecast as compared to reality. MAE is determined as follows:

$$MAE = \frac{\sum_{t=1}^{T}|F_t - A_t|}{T}$$

Theil's inequality coefficient (TIE) serves for assessing the success of forecasts. The coefficient is defined as the ratio of the mean squared errors of analysed forecasts and naive forecasts:

$$TIE = \frac{\sum_{t=1}^{T}(F_t - A_t)^2}{\sum_{t=1}^{T}(A_{t-1} - A_t)^2}$$

If Theil's coefficient equals 0, then the forecast matches the actual situation. Coefficient values greater than 1 indicate that the results of forecast activities are worse than those of the naive forecast. In interpreting results, it is necessary to take into consideration the fact that this indicator considerably "penalises" an isolated, markedly worse result as compared to the naive forecast and, by contrast, yields a substantial "bonus" for well estimated sudden shifts in the development of predicted quantities.

A **naive forecast** is a mechanically created forecast whereby the value of a given indicator for the year t+1 equals the measured, estimated or forecast value of this indicator for the year t.

The **forecast horizon** is understood to be the time from publishing the forecast to the end of the forecast period.

All statistics were calculated in comparison with the first estimates published by the CZSO or CNB, as it is not possible to estimate the scope of changes in past development through subsequent revisions of time series, which for the most part cannot be divided into components materially specifying the given indicator and methodological change.

Real GDP Growth

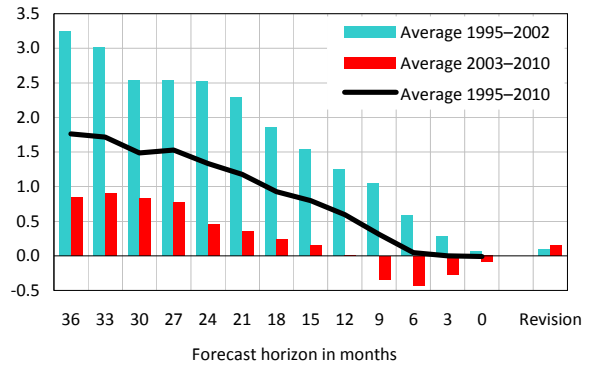
While forecasts from the years 1995–2002 significantly overvalued real GDP growth, in the subsequent period the deviation toward overvaluing growth was already much lower and in a short time horizon real GDP growth was instead slightly undervalued.

The high mean absolute error in a horizon of over 15 months, amounting to 2–3 p.p. for the entire monitored period, was caused by inaccurate estimates of real GDP growth in the years 1998 and 2009, when the onset of recession was not detected sufficiently in advance.

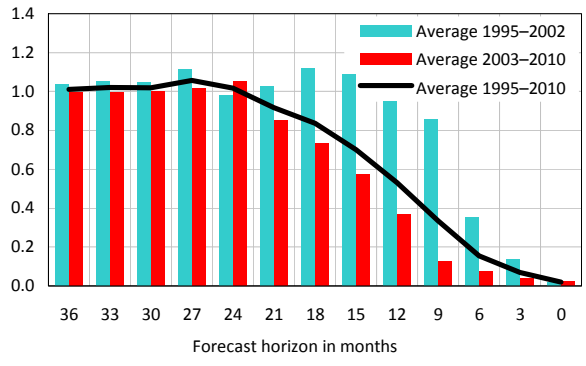
In connection with the recent recession, it is necessary, however, to emphasise that it was caused exclusively by an unfavourable development in the external environment. The difficulty in predicting future development in this period is evidenced, for example, by comparisons with the forecasts of other institutions from this period (see Macroeconomic Forecast, July 2008, Chapter D, http://www.mfcr.cz/cps/rde/xbcr/mfcr/MakroPre_2008Q3_komplet_pdf.pdf) or gradual adjustment of the forecasts of international institutions (see Macroeconomic Forecast, April 2009, Chapter A1, table A.1.1, http://www.mfcr.cz/cps/rde/xbcr/mfcr/MakroPre_2009Q2_komplet_pdf.pdf).

The same explanation can be offered for Theil's coefficient values, which in a horizon of longer than 24 months exceed 1.0. The marked decrease in the Theil's coefficient in the second monitored period in the horizon of 6–18 months indicates improvement in the quality of the forecasts of real GDP growth.

Graph 1: **Average Forecasting Error**
in p.p.



Graph 2: **Theil's Inequality Coefficient**

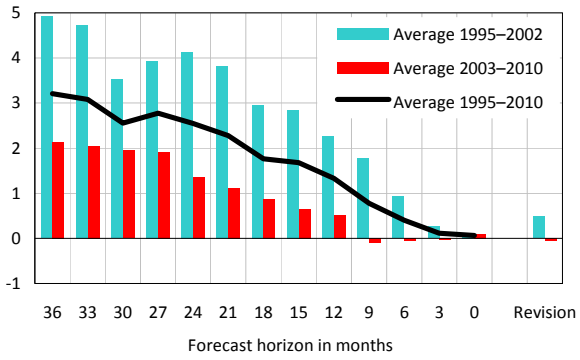


Nominal GDP Growth

From the viewpoint of the budgetary process, nominal GDP is the most important macroeconomic indicator. It is used as the denominator in ratio indicators, and forecasts of budget income are derived from the magnitude of its components.

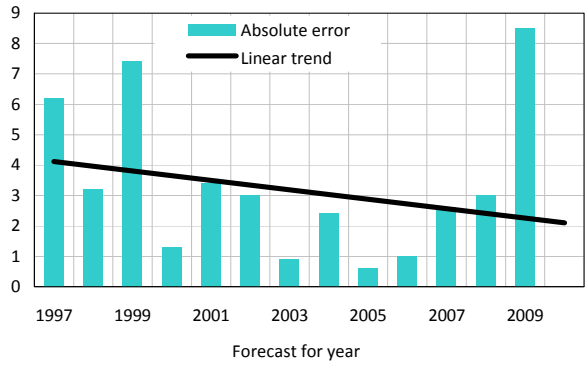
Nominal GDP growth in both monitored periods was slightly overvalued in longer horizons, but the average forecasting error was significantly lower in the second period and almost zero in a horizon of up to 9 months.

Graph 3: **Average Forecasting Error**
in p.p.



The mean absolute error, which was lower by an average 35% in the second monitored period, also confirms the increase in the quality of forecasts. In an 18-month horizon, which represents the starting point for preparing the state budget, absolute error shows a decreasing character. High values in the years 1997 and 2009 fall within periods of economic recessions, while that in 1999 falls within a period of disinflation. The estimate for 2010, on the other hand, was entirely accurate.

Graph 4: **MAE in the 18-month horizon**
in p.p.



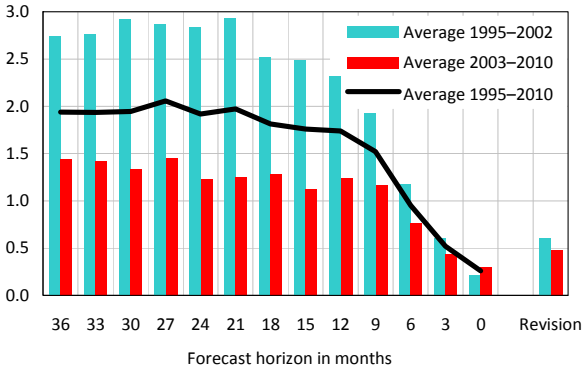
GDP Deflator Growth

Growth in the GDP deflator was overvalued in both monitored periods, but the average forecasting error did not exceed 1.5 p.p. throughout the horizon. As with nominal GDP growth, the significant decrease in mean absolute error during 2003–2010, which fell by more than two fifths on average as compared with the first period, was evident here as well.

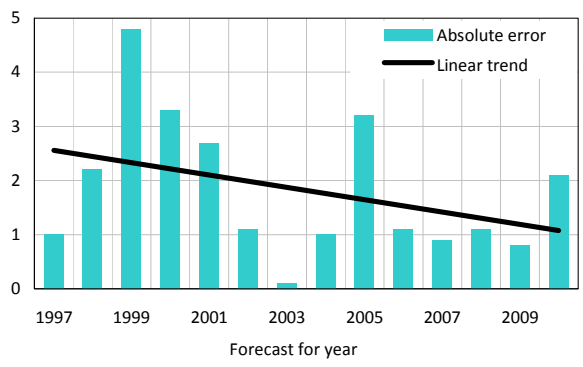
The graph depicting the absolute error in an 18-month horizon also confirms this decreasing trend. The error for 1999 falls in a period of disinflation, when growth of the GDP deflator fell from 10.8% in 1998 to 2.7% in 1999. Although the decline was expected and properly identified in time, its scope exceeded all expectations.

The Theil's coefficient for the entire 16-year period did not exceed 0.85 at any point in the horizon, although its average values were slightly higher in the second period.

Graph 5: **Mean Absolute Error**
in p.p.



Graph 6: **MAE in the 18-month horizon**
in p.p.



Real Household Consumption Growth

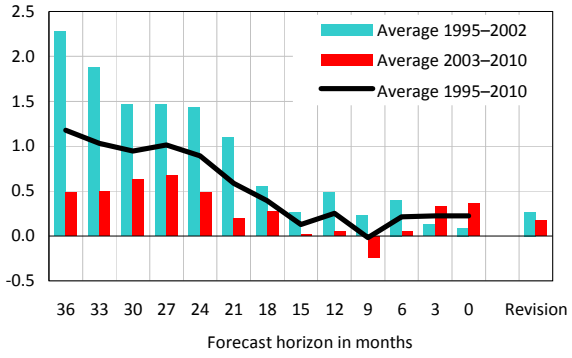
Whereas in the first period the growth of household consumption was mainly overestimated, in the second period the forecasts were almost unbiased and the average forecasting error did not exceed 0.5 p.p. in a horizon less than 24 months.

Mean absolute error is systematically lower than forecasts of real GDP. Average value of the mean absolute error reaches about 2.5 p.p. in the horizon of 2-3 years, then it gradually decreases and it is below 1 p.p. in a short time horizon of 0-9 months.

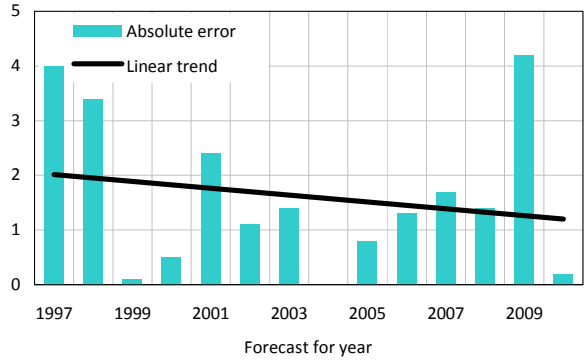
This downward trend is also confirmed by another graph showing the mean absolute error in the 18-month horizon. The errors for 1997 and 1998 fall in a period of recession, when the household consumption growth slowed from 8.4% in 1996 to 2.2% in 1997 and then it fell by -0,8% in 1998. Although the decline was predicted, its scope exceeded all expectations. The error for 2009 falls also in a period of recession. An interesting result is almost accurate prediction for 2010, which was publish in 2009 without the knowledge of "Janota's package" to stabilise public finances.

The Theil's inequality coefficient is roughly at the level of 1 in a horizon more than 21 months, then from the 18-month budget horizon it is continuously decreasing.

Graph 7: **Average Forecasting Error**
in p.p.



Graph 8: **MAE in the 18-month horizon**
in p.p.



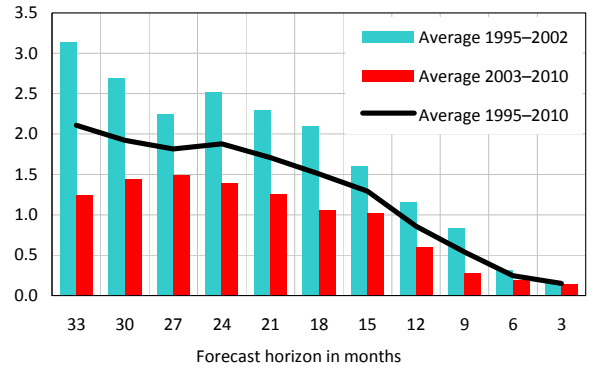
Average Inflation Rate

Price development predictions in the Macroeconomic Forecast were surprisingly accurate in the majority of cases. In the main, the forecasts slightly overvalued the average inflation rate. In a horizon of up to 30 months, the average forecasting error did not exceed 1 p.p. in either monitored period.

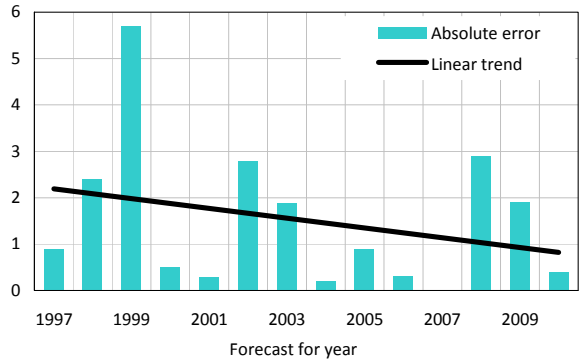
Similar to the average forecasting error, the mean absolute error in the second period is also significantly lower and has a decreasing character over the 18-month budget horizon. The error for 1999 falls into a period of fierce disinflation, as the average inflation rate fell from 10.7% in 1998 to 2.1% in 1999. Although this trend was properly identified, its scope exceeded all expectations. On the other hand, the absolute error did not exceed 1.0 p.p. during the 18-month budget horizon in 8 of the 14 years monitored. This can be seen as very positive.

The Theil's inequality coefficient never exceeded 0.75 in either monitored period over the entire time horizon.

Graph 9: **Mean Absolute Error**
in p.p.



Graph 10: **MAE in the 18-month horizon**
in p.p.



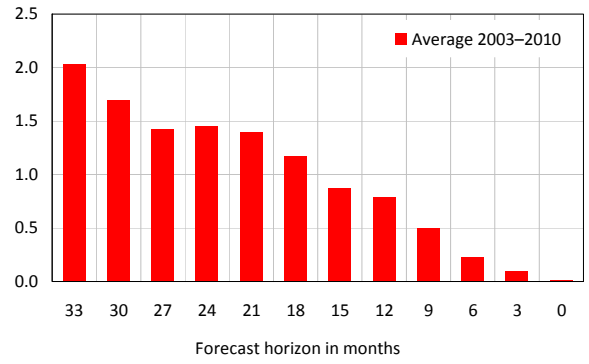
Average Unemployment Rate (LFS)

The unemployment rate according to LFS has been forecasted only since 2000, and thus it was not possible to compare the quality of forecasts over time.

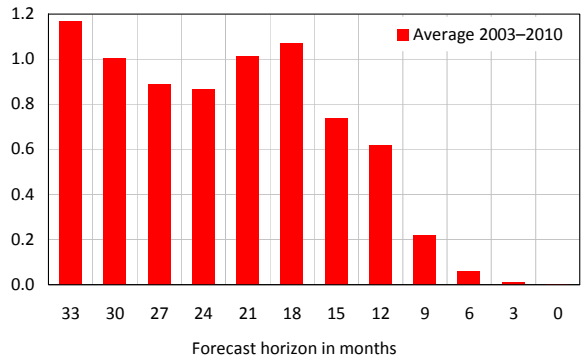
Forecasts systematically overvalued the unemployment rate, but the average forecasting error did not exceed 0.6 p.p. over any time horizon. The unemployment rate was undervalued only in 2009, when it grew by 2.3 p.p. in comparison with the previous year as a result of economic recession.

Mean absolute error shows a continuously decreasing trend and does not exceed 1.0 p.p. in a horizon less than 15 months. High Theil's inequality coefficient values in the horizon over 18 months are due primarily to inaccurate estimates in the years 2007 and 2009. The drop in the unemployment rate in 2007 as a result of rapid economic growth surpassed our expectations, while in 2009 we were unable to detect the onset of the recession sufficiently in advance.

Graph 11: **Mean Absolute Error**
in p.p.



Graph 12: **Theil's Inequality Coefficient**



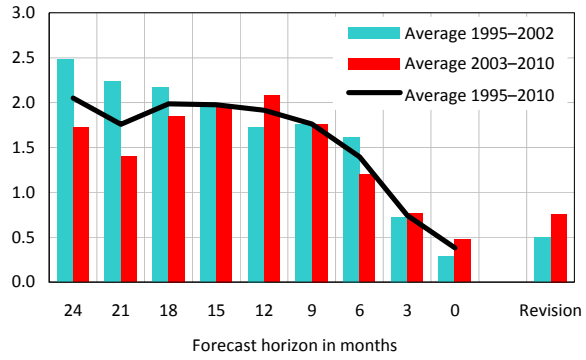
Current Account to GDP Ratio

Although forecasts overvalued the ratio of the current account to GDP during the monitored period, the average forecasting error did not exceed 0.5 p.p. on average in either period. The mean absolute error ranged, with a few exceptions, between 1 p.p. and 2 p.p. and typically was lower in the second monitored period. Absolute error in the 18-month horizon shows a decreasing character.

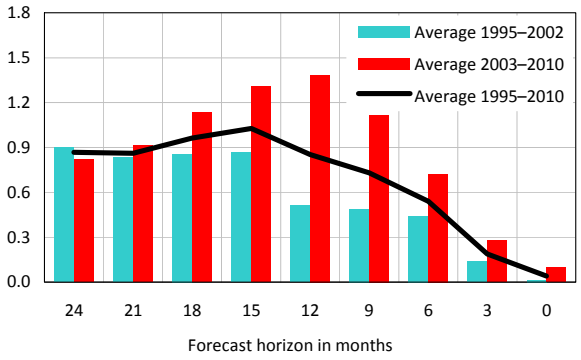
Apart from the 24-month horizon, the Theil's coefficient is lower in the first monitored period. In the second period, it even surpassed 1 in the 9–18 months range. This can be blamed largely upon a change to the revision system which occurred in the second monitored period. While previously revisions were made almost constantly, now this is done only once per year. As a result, the period in which the forecast is established on past development, which, as is later shown, does not correspond to reality, thus is extended.

Graph 13: **Mean Absolute Error**

in p.p.



Graph 14: **Theil's Inequality Coefficient**



Comparing the Success of Ministry of Finance Forecasts with Prognoses of International Institutions

We have compared forecasts of the Czech Ministry of Finance with the macroeconomic prognoses of OECD, the European Commission and the International Monetary Fund. In this case as well, we made use of the average forecasting error, mean absolute error and Theil's inequality coefficient to evaluate the success of forecasts, though we conducted the comparison only for the period 2003–2010. The results indicate that the **success of all institutions' forecasts basically do not much differ**. Nevertheless, the forecasts of the Czech Ministry of Finance and of OECD achieve the best results in the majority of cases.

Table 1: **Forecasts of Real GDP Growth**

	Average Forecasting Error (AFE)				Mean Absolute Error (MAE)				Theil's Inequality Coefficient			
	MoF	EC	OECD	IMF	MoF	EC	OECD	IMF	MoF	EC	OECD	IMF
27 months	0.78	0.79	0.78	-	2.70	2.59	2.58	-	1.01	0.94	1.08	-
21 months	0.35	0.44	0.50	0.13	2.58	2.54	2.40	2.55	0.85	0.85	0.72	0.80
15 months	0.15	0.21	0.25	0.04	2.38	2.26	1.88	2.29	0.57	0.55	0.42	0.58
9 months	-0.34	-0.41	-0.39	-0.65	1.24	1.16	0.74	1.08	0.13	0.12	0.06	0.10
3 months	-0.28	-0.28	-0.11	-0.55	0.58	0.60	0.46	0.75	0.04	0.04	0.03	0.07

Table 2: **Forecasts of Nominal GDP Growth**

	Average Forecasting Error (AFE)			Mean Absolute Error (MAE)			Theil's Inequality Coefficient		
	MoF	EC	OECD	MoF	EC	OECD	MoF	EC	OECD
27 months	1.91	1.97	1.55	3.16	3.50	2.90	0.99	0.95	0.93
21 months	1.11	1.58	1.45	2.36	2.77	2.30	0.71	0.85	0.47
15 months	0.65	0.98	0.98	2.30	2.66	2.28	0.61	0.56	0.54
9 months	-0.10	0.02	0.88	1.60	1.83	1.98	0.25	0.33	0.62
3 months	-0.04	0.00	0.18	0.66	1.48	0.73	0.06	0.11	0.08

Table 3: **Forecasts of GDP Deflator Growth**

	Average Forecasting Error (AFE)			Mean Absolute Error (MAE)			Theil's Inequality Coefficient		
	MoF	EC	OECD	MoF	EC	OECD	MoF	EC	OECD
27 months	1.08	1.02	0.7	1.45	1.45	0.95	1.29	0.87	0.62
21 months	0.73	1.07	0.93	1.25	1.60	1.00	0.50	0.77	0.22
15 months	0.45	0.73	0.66	1.13	1.41	1.24	0.38	0.53	0.40
9 months	0.21	0.44	1.23	1.16	1.50	1.73	0.38	0.61	1.13
3 months	0.21	0.25	0.28	0.44	1.20	0.48	0.06	0.45	0.07

Table 4: **Forecasts of Real Household Consumption Growth**

	Average Forecasting Error (AFE)			Mean Absolute Error (MAE)			Theil's Inequality Coefficient		
	MoF	EC	OECD	MoF	EC	OECD	MoF	EC	OECD
27 months	0.68	1.55	0.89	2.08	2.38	1.96	1.15	1.11	1.09
21 months	0.20	0.67	0.41	1.53	1.83	1.59	0.96	1.03	0.96
15 months	0.01	0.66	0.04	1.66	1.71	1.54	0.73	0.79	0.52
9 months	-0.24	-0.07	-0.29	1.04	0.99	0.79	0.33	0.26	0.21
3 months	0.33	0.35	0.38	0.78	0.73	0.88	0.14	0.16	0.18

Table 5: **Forecasts of Average Inflation Rate**

	Average Forecasting Error (AFE)			Mean Absolute Error (MAE)			Theil's Inequality Coefficient		
	MoF	OECD	IMF	MoF	OECD	IMF	MoF	OECD	IMF
27 months	0.51	0.67	-	1.49	1.47	-	0.73	0.76	-
21 months	0.24	0.35	0.57	1.26	1.37	1.40	0.41	0.42	0.57
15 months	0.32	0.44	0.66	1.02	0.94	1.24	0.27	0.21	0.34
9 months	0.00	0.46	0.31	0.27	0.54	0.39	0.02	0.09	0.04
3 months	-0.01	0.17	0.25	0.14	0.20	0.25	0.01	0.01	0.01

Table 6: **Forecasts of Average Unemployment Rate (LFS)**

	Average Forecasting Error (AFE)			Mean Absolute Error (MAE)			Theil's Inequality Coefficient		
	MoF	EC	OECD	MoF	EC	OECD	MoF	EC	OECD
27 months	0.03	0.30	0.16	1.43	1.57	1.41	0.89	0.92	0.85
21 months	0.51	0.53	0.83	1.40	1.30	1.49	1.01	0.84	1.10
15 months	0.16	0.31	0.29	0.87	0.86	0.94	0.74	0.72	0.63
9 months	0.27	0.36	0.44	0.50	0.56	0.44	0.22	0.29	0.20
3 months	0.00	0.21	0.09	0.10	0.21	0.16	0.01	0.08	0.02

Table 7: **Forecasts of Current Account to GDP Ratio**

	Average Forecasting Error (AFE)			Mean Absolute Error (MAE)			Theil's Inequality Coefficient		
	MoF	OECD	IMF	MoF	OECD	IMF	MoF	OECD	IMF
27 months	-	-0.30	-	-	1.43	-	-	0.87	-
21 months	0.05	0.59	-0.43	1.40	1.81	1.05	0.91	1.61	0.71
15 months	0.33	0.21	0.10	1.95	2.24	1.28	1.30	1.43	0.97
9 months	0.06	0.45	-0.18	1.76	1.58	1.38	1.12	0.95	0.65
3 months	0.19	0.00	0.36	0.76	1.00	1.29	0.27	0.40	0.61

Note : As for consumer prices, EC produces only forecasts of HICP which is not quantitatively comparable with national CPI. IMF Outlook consists only of forecasts of real GDP growth, inflation and current account/GDP ratio.

Conclusion

An evaluation of the historical values of Ministry of Finance Macroeconomic forecasts showed that their quality is improving over time. The Ministry's forecasts are fully comparable with those of renowned international institutions, and in several cases are even better. At the same time, the Ministry of Finance of the Czech Republic usually publishes its forecasts before the other institutions included in this comparison do so.

Based on the conducted analyses, it can also be stated that for the majority of macroeconomic indicators the forecasts have informative value on a horizon of up to approximately 18 months. On a longer time horizon, forecasts rather establish expectations for the trend of economic development.

Literature:

Koutsogeorgopoulou, V.: A Post-Mortem on Economic Outlook Projections, OECD Economic Department Working Papers No. 274. Paris, OECD Economic Department, 2000.

Melander, A., Sismanidis, G., Grenouilleau, D.: The track record of the Commission's forecasts – an update. Brussels, European Commission, 2007.

Novotný, F., Raková, M.: Assessment of Consensus Forecasts Accuracy: The Czech National Bank Perspective. Prague, Czech National Bank, 2010.

Table annex

Table 8: **Forecasts of Real GDP Growth**

	Average Forecasting Error (AFE)			Mean Absolute Error (MAE)			Theil's Coefficient
	1995–2010	1995–2002	2003–2010	1995–2010	1995–2002	2003–2010	1995–2010
36 months	1.76	3.24	0.84	2.88	3.24	2.66	1.01
33 months	1.72	3.02	0.90	2.92	3.10	2.80	1.02
30 months	1.48	2.54	0.83	2.95	3.10	2.85	1.02
27 months	1.53	2.53	0.78	2.89	3.13	2.70	1.06
24 months	1.34	2.52	0.45	2.74	3.08	2.48	1.02
21 months	1.18	2.28	0.35	2.84	3.18	2.58	0.92
18 months	0.93	1.85	0.24	2.69	2.75	2.64	0.84
15 months	0.80	1.54	0.15	2.29	2.20	2.38	0.70
12 months	0.59	1.26	0.01	1.87	1.89	1.86	0.53
9 months	0.31	1.04	-0.34	1.45	1.70	1.24	0.34
6 months	0.05	0.59	-0.43	0.91	1.04	0.80	0.15
3 months	0.00	0.28	-0.28	0.63	0.68	0.58	0.07
0 months	-0.01	0.06	-0.09	0.35	0.31	0.39	0.02
Revisions	0.12	0.09	0.15	0.71	1.03	0.43	x

Table 9: **Forecasts of Nominal GDP Growth**

	Average Forecasting Error (AFE)			Mean Absolute Error (MAE)			Theil's Coefficient
	1995–2010	1995–2002	2003–2010	1995–2010	1995–2002	2003–2010	1995–2010
36 months	3.21	4.92	2.14	3.84	4.92	3.16	0.94
33 months	3.08	4.74	2.04	3.89	4.90	3.26	0.98
30 months	2.55	3.52	1.95	3.85	4.96	3.15	0.95
27 months	2.78	3.93	1.91	3.96	5.03	3.16	0.86
24 months	2.55	4.13	1.36	3.72	5.33	2.51	0.91
21 months	2.28	3.83	1.11	3.51	5.03	2.36	0.83
18 months	1.76	2.95	0.88	3.11	4.08	2.38	0.75
15 months	1.68	2.86	0.65	3.04	3.89	2.30	0.72
12 months	1.33	2.27	0.51	2.53	3.19	1.96	0.56
9 months	0.78	1.79	-0.10	2.03	2.53	1.60	0.34
6 months	0.40	0.93	-0.06	1.17	1.47	0.91	0.14
3 months	0.11	0.26	-0.04	0.85	1.04	0.66	0.06
0 months	0.06	0.02	0.10	0.36	0.35	0.38	0.01
Revisions	0.17	0.49	-0.11	0.82	1.20	0.49	x

Table 10: **Forecasts of GDP Deflator Growth**

	Average Forecasting Error (AFE)			Mean Absolute Error (MAE)			Theil's Coefficient
	1995–2010	1995–2002	2003–2010	1995–2010	1995–2002	2003–2010	1995–2010
36 months	1.28	1.38	1.23	1.94	2.74	1.44	0.82
33 months	1.18	1.40	1.04	1.94	2.76	1.42	0.85
30 months	0.95	0.76	1.06	1.95	2.92	1.34	0.77
27 months	1.10	1.13	1.08	2.06	2.87	1.45	0.74
24 months	1.15	1.37	0.98	1.92	2.83	1.23	0.76
21 months	0.97	1.30	0.73	1.97	2.93	1.25	0.69
18 months	0.73	0.88	0.61	1.81	2.52	1.29	0.55
15 months	0.76	1.11	0.45	1.76	2.49	1.13	0.43
12 months	0.65	0.83	0.49	1.74	2.31	1.23	0.35
9 months	0.40	0.61	0.21	1.52	1.93	1.16	0.26
6 months	0.31	0.26	0.36	0.95	1.17	0.76	0.12
3 months	0.07	-0.07	0.21	0.52	0.60	0.44	0.03
0 months	0.04	-0.07	0.15	0.26	0.22	0.30	0.01
Revisions	0.02	0.34	-0.27	0.54	0.61	0.48	x

Table 11: **Forecasts of Real Household Consumption Growth**

	Average Forecasting Error (AFE)			Mean Absolute Error (MAE)			Theil's Coefficient
	1995–2010	1995–2002	2003–2010	1995–2010	1995–2002	2003–2010	1995–2010
36 months	1.18	2.28	0.49	2.45	3.16	2.01	0.94
33 months	1.03	1.88	0.50	2.54	3.16	2.15	0.99
30 months	0.95	1.46	0.63	2.56	3.22	2.15	1.01
27 months	1.01	1.47	0.68	2.44	2.93	2.08	1.05
24 months	0.89	1.43	0.49	2.26	2.80	1.86	0.96
21 months	0.59	1.10	0.20	1.99	2.60	1.53	0.95
18 months	0.39	0.55	0.28	1.61	1.92	1.38	0.65
15 months	0.13	0.26	0.01	1.65	1.63	1.66	0.53
12 months	0.25	0.49	0.05	1.25	1.23	1.28	0.41
9 months	-0.02	0.23	-0.24	1.02	1.00	1.04	0.26
6 months	0.21	0.40	0.05	0.76	0.63	0.88	0.17
3 months	0.23	0.13	0.33	0.69	0.60	0.78	0.11
0 months	0.23	0.09	0.36	0.44	0.39	0.49	0.05
Revisions	0.22	0.27	0.17	0.84	1.26	0.41	x

Table 12: **Forecasts of Average Inflation Rate**

	Average Forecasting Error (AFE)			Mean Absolute Error (MAE)			Theil's Coefficient
	1995–2010	1995–2002	2003–2010	1995–2010	1995–2002	2003–2010	1995–2010
33 months	1.33	1.58	1.12	2.11	3.14	1.25	0.75
30 months	0.74	1.02	0.56	1.92	2.70	1.44	0.67
27 months	0.69	0.92	0.51	1.81	2.25	1.49	0.60
24 months	0.96	1.52	0.55	1.88	2.52	1.40	0.64
21 months	0.66	1.23	0.24	1.71	2.30	1.26	0.46
18 months	0.45	0.90	0.11	1.51	2.10	1.06	0.40
15 months	0.61	0.94	0.32	1.29	1.60	1.02	0.37
12 months	0.41	0.53	0.30	0.86	1.15	0.60	0.14
9 months	0.10	0.21	0.00	0.54	0.84	0.27	0.05
6 months	0.02	0.06	-0.01	0.25	0.32	0.19	0.01
3 months	0.05	0.11	-0.01	0.15	0.16	0.14	0.00

Table 13: **Forecasts of Average Unemployment Rate (LFS)**

	Average Forecasting Error (AFE)			Mean Absolute Error (MAE)			Theil's Coefficient
	1995–2010	1995–2002	2003–2010	1995–2010	1995–2002	2003–2010	1995–2010
33 months			0.57			2.03	1.17
30 months			-0.01			1.70	1.01
27 months			0.03			1.43	0.89
24 months			0.31			1.46	0.87
21 months			0.51			1.40	1.01
18 months			0.31			1.17	1.07
15 months			0.16			0.87	0.74
12 months			0.27			0.79	0.62
9 months			0.27			0.50	0.22
6 months			0.17			0.23	0.06
3 months			0.00			0.10	0.01
0 months			0.01			0.01	0.00

Table 14: **Forecasts of Current Account to GDP Ratio**

	Average Forecasting Error (AFE)			Mean Absolute Error (MAE)			Theil's Coefficient
	1995–2010	1995–2002	2003–2010	1995–2010	1995–2002	2003–2010	1995–2010
24 months	0.22	0.18	0.25	2.05	2.48	1.73	0.87
21 months	0.13	0.23	0.05	1.76	2.23	1.40	0.86
18 months	0.21	0.40	0.08	1.99	2.17	1.85	0.96
15 months	0.47	0.63	0.33	1.97	2.00	1.95	1.03
12 months	0.39	0.50	0.30	1.91	1.73	2.08	0.85
9 months	0.24	0.44	0.06	1.76	1.76	1.76	0.73
6 months	0.39	0.59	0.23	1.39	1.61	1.20	0.54
3 months	0.27	0.35	0.19	0.74	0.73	0.76	0.19
0 months	0.04	0.24	-0.15	0.38	0.29	0.48	0.04
Revisions	0.34	0.06	0.58	0.64	0.50	0.76	x