2.2. Gross fixed capital formation

This chapter focuses on the position of the economy in the investment cycle and identification of its determinants. Further, the chapter analyses the influence of gross fixed capital formation on the economic growth and concludes with an international comparison. Similarly as 2003, the year 2005 was rather atypical. The Czech economy (in expansion) has recorded a lower growth rate for investments than for GDP and the share of contribution of investments to GDP growth was very low. Nevertheless, investments still reflect the business cycle and continue their expansion. Inter alia, this process is supported by the environment with very low real interest rates.

- **Growth rate of gross fixed capital formation was slightly below medium-term average**

  In 2005 the growth rate of gross fixed capital formation reached 3.6%, while the growth rate of gross capital in aggregate was only 2.9%. This difference results particularly from the negative change in inventories formation.

  From the point of view of long-term trend the growth in 2005 was still above the average (long-term average of gross fixed capital formation growth is 2.6%), but this lower average was determined particularly by negative growth rates in the recession phase. In a mid-term view (2000-2005) the year 2005 recorded a below-average growth rate for fixed capital, as well as for aggregate gross capital (by 0.5 pp and 1.3 pp, respectively).

  A similar situation occurred already in 2003, but in this case the gross capital formation showed even negative growth rate. This year does not show any exceptional development of the analysed investment determinants. The only difference was the price level development, the first and the third quarters recorded even a deflation. Such price development could negatively influence gross fixed capital formation. Investors afraid of deflation problems of the economy (for example Japan in the past years) could hesitate in relation to investment opportunities and could rather postpone them.

- **Gross fixed capital formation continues to expand**

  Volatility of formation of fixed and aggregate gross capital still exceeds the total GDP volatility. Gross capital formation is influenced particularly by the very fluctuant inventories development. However, this volatility has been reduced in recent years. This result (inter alia) also from the fact that the development of gross fixed capital formation reflects a relatively long and continuous expansion of the entire economy. But unlike GDP the investment growth in 2005 slowed down.

**Graph 2.2.1 Growth rates of GDP, GFCF and GCF**
(year-on-year changes in %, constant prices of the year 2000)

- **Proportions of contributions of gross fixed capital formation to GDP growth decrease**

  The year 2005 was unique by its GDP growth rate, which (in the expansion period) exceeded the GFCF growth rate. GDP grew faster since the Q3 of 2004 (Graph 2.2.1). This is related to another fact, the contribution of investments to GDP growth (expressed as a percentage of aggregate GDP growth), which was well below the average. Year-on-year growth amounting to 3.6% at constant prices contributed to
the GDP growth “only” with 0.9 pp in 2005. With respect to rapid economic growth this contribution meant only approximately 15 % of the aggregate GDP growth. In a long-term view the contribution of investments to GDP growth amounts almost to 70 % (provided that in the period 2000-2005 investments contributed in average almost to one half of the aggregate GDP growth).

Contributions of investments to GDP growth (expressed as a share in the aggregate economic growth) have been declining since 2001 already, with a significant fall in 2003. This phenomenon occurred notwithstanding the sound growth rates of GFCF (except for 2003). The leading position in the economic cycle is thus taken over by influence of international trade, the weight of which (exports, as well as of imports) in GDP has since 1995 increased almost by one half. Therefore it seems that the latest development only confirms the observed trend of investments which have a relatively stronger impact on the business cycle in recession phases.

- Low real interest rates environment positively influences investment activity

The real interest rate (12M PRIBOR deflated by CPI) has been close to zero in recent years. The real interest rate crucial for investment decisions is probably expressed a bit more exactly by long-term (5 – 10 years) rates deflated by industrial production price index. Real rates expressed by this method have been even slightly below zero values in the last two years.

The low interest rates environment favourably influences investment activity. The relationship between real rates and investments is stronger in the periods of recession¹ (in the period 2000-2005 the correlation coefficient was −0.44, while in the recession period −0.81; in the entire analysed period −0.71). Anyway, we cannot declare that this is the only or the key factor, because the mentioned real interest rates have further decreased, compared to 2004 but the GFCF growth has slowed down.

- Unclear influence of GDP on investments in recent years

Past studies imply that in the Czech economy we may partially explain the investments development by GDP growth (accelerator principle). In this respect the development in the past two years has been different. In the entire year 2004 GFCF growth rate decreased notwithstanding the continuously increasing GDP growth rate. At the turn of 2004 and 2005 the already mentioned excess of the GFCF growth rate by the GDP growth occurred. In the second quarter of 2005 the development of investments recovered and accelerated. However, should the lower growth rates of GFCF compared to GDP survive (in the period of economic expansion), this could imply a change of the economic growth nature. This consideration is also supported by the fact that the year 2004 could have nearly performed as “atypical”. In that year the GFCF growth rate exceeded the GDP growth rate by mere 0,5 pp, provided that in the second half of the year the GFCF growth rate was below the GDP rate.

Direct foreign investment undoubtedly constitutes an important element influencing investment activities but from statistics we cannot determine its direct influence that would directly reflect in the GFCF development. Moreover, in recent years the developments of both coefficients have diverged and more specific relations cannot be identified. In 2003 there was a rapid fall in DFI inflow and in the growth rate of investment. In 2004 DFI values remained below average, nevertheless GFCF showed a sound increase of its growth rate. A reverse situation occurred in 2005, when the DFI volume increased again (approximately doubled in comparison to 2004), but the GFCF growth rate slowed down. These relations were probably influenced also by the time lags between a foreign investment and its possible impact on GFCF.

- Relation of direct foreign investment and gross fixed capital formation not evident in recent years

Investment climate, reflected in balances of business cycle surveys, in a long-term view gives a true picture of GCF development (correlation coefficient of the GCF growth rate and business cycle balance of aggregate indicator is 0.74). For an aggregate indicator the relation to GFCF development is slightly weaker (0.5). GFCF development is better characterised by the business cycle balance in construction

¹ We have to consider that correlation does not tell anything about causality. During recession investments surely responded (similarly as interest rates due to restrictive monetary policy) to the adverse macroeconomic development, therefore no direct relation cannot be found between the two phenomena.
industry (0.63). However, this relation has weakened lately (correlation coefficient of GFCF and aggregate indicator balance in the years 2000-2005 was only 0.3). Moreover, the decrease of GFCF growth rates in 2004 was not indicated by business cycle balances at all and the subsequent turn to better results in mid-2005 was reflected only in a limited extent. Therefore business cycle balances as indicators of economic sentiments seem to provide a relatively good picture of the general development trend, but they do not suffice for a more detailed estimate.

• **Influence of investment on economic growth depends on their volume** …

Investment rate (ratio of GFCF and GDP at constant prices of the year 2000) during the analysed year changed only slightly (since 1995 the rate had dropped by 0.3 pp to 28.5 % in 2005). This value is slightly below average in a long-term, as well as in a medium-term view. Investment rate expressed at current prices continued its declining trend and has almost reached 25 %, the value by 6 pp less than in 1995. This development evidences slower growth of fixed capital prices compared to GDP deflator.

• **... and their efficiency**

Investment efficiency expressed as ICOR coefficient² (Incremental Capital Output Ratio), calculated for certain OECD states, defines the number of investment units per GDP increase by one unit. We must mention its deficiencies due to non-reflection of time lags of investment influence on GDP, but still this coefficient serves at least as an interesting indicator of GDP structure (particularly in international comparison). If we consider the time lag between the implementation of investment and its impact on GDP, the adjusted ICOR (with considered investments of previous year) is in average by 0.5 lower.

ICOR in 2005 markedly dropped to 5.0, which was a historic minimum since 1996. The cause of such turn most of all relates to the accelerated economic growth. In this context (when growth is not primarily driven by investment) the last year’s development can hardly be interpreted as an improvement in investment efficiency.

• **Also in international comparison the 2005 development is rather atypical**

While GDP growth was the highest among the compared countries, GFCF growth was slightly below average. This simultaneously confirms the exceptional nature of the last year’s development of GFCF in the Czech economy, when together with Germany the Czech economy was to only one to record a GFCF growth lower than the growth of GDP. But Germany goes though a stagnation phase and the lower increase of GFCF in comparison to GDP therefore is not so atypical.

Germany (and Slovakia) simultaneously recorded a positive change in inventories formation. An increase in inventories may imply an optimistic outlook of enterprises which intend to accumulate inventories in advance or a cumulation of unsold goods. In case of Slovakia where economic growth reached 6 % we may suppose the first option. The second option will probably be valid for Germany. The Czech Republic recorded a decrease in inventories formation.

• **Investment rate very high in international comparison**

Investment rate is the highest in the compared countries. The 30% limit is approached only by another two transitiv economies (Hungary and Slovakia). Advanced countries on the contrary record investment rates of approximately 20 %. It is interesting that the Czech Republic and Poland recorded the lowest change in investment rates at constant prices (in case of the Czech Republic it was a slight decrease, in Poland a slight increase). Investment rates in the USA, EU-15, Great Britain and Hungary increased in average by 3 pp, while in Germany and Slovakia the investment rate dropped by 2 and 3 pp, respectively. At current prices the investment rate in the Czech Republic is not so exceptional. Previous studies showed that the biggest influence on the high investment rate in the Czech Republic resulted particularly from the different price relations. Upon calculation of investment rate in purchasing power parities the investment rate of the Czech economy approximates values recorded in advanced economies.

Upon comparison of investment rates calculated at constant and current prices we shall get a price ratio of GDP (deflator) and investments. Of all the compared

² OECD did not publish full time series for the Czech Republic, however, this coefficient may be derived using the following formula: ICOR = Investment / Δ GDP.
In international comparison only Slovakia recorded better ICOR coefficient than the Czech Republic. The same value as in the Czech economy may be found in Ireland. In case of Slovakia this situation results from the similarly high growth rate as the Czech one. On the other hand, Ireland achieves low ICOR values rather through the low investment rate (although the economic growth was also sound). The worst ICOR results are reported by states with slow economic growth.