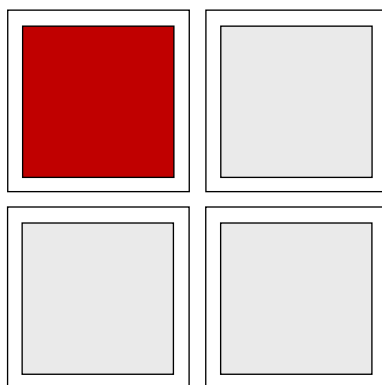


# INDICATOR OF ECONOMIC ACTIVITY IN BULGARIA



# **1** | 2009



AGENCY FOR  
ECONOMIC  
ANALYSIS AND  
FORECASTING

The information herein published may be used without special permission provided it is properly cited and explicitly referred to.

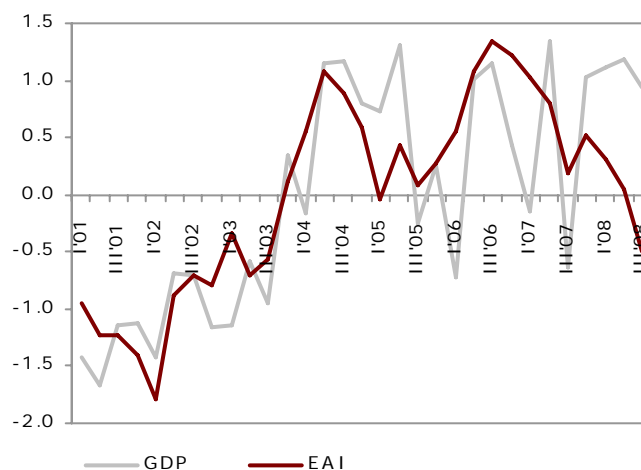
ISSN 1313-7565

© Agency for Economic Analysis and Forecasting, 2009

1000 Sofia, 31 Aksakov Str.; tel. 9859 56 01, 981 65 97; fax: 981 33 58; e-mail: [aeaf@aeaf.minfin.bg](mailto:aeaf@aeaf.minfin.bg); [www.aeaf.minfin.bg](http://www.aeaf.minfin.bg)

The Economic Activity Indicator (EAI)<sup>1</sup> is aimed at giving an overall picture of the current state of affairs in the Bulgarian economy as well as an account of its long-term and cyclical components. It has been constructed based on a dynamic factor model and consists of eight variables, measuring change in both the internal and external environment<sup>2</sup>. As GDP is another aggregate indicator of business activity, both EAI and GDP have reported more or less the same pattern of dynamics in most periods of survey. This, however, does not imply that change in both indicators was identical<sup>3</sup> because in given periods it may have differed not only in magnitude but direction as well.

Fig. 1: Economic Activity Indicator (EAI) and real GDP growth (normalised)



Source: AEAf estimates, NSI, Eurostat, BNB, World bank

EAI carried on declining for another quarter in a row. All indicators, making up the composite indicator, had an adverse effect on its performance, with the strongest negative contribution being posted by the industrial sales index, global metal prices and the business climate indicator in retailing.

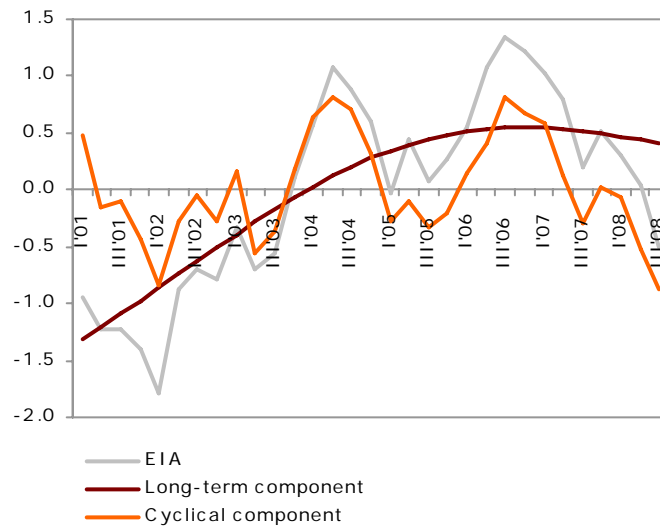
<sup>1</sup> For more information on the methodology of EAI construction, see appendix "Rationale and advantages of the Economic Activity Indicator. Some methodological notes".

<sup>2</sup> The variables, making up EAI, are as follows: GDP, value added in construction, employed numbers, EU-25 GDP, industrial sales, business climate in retailing, long-term loan interest rates in BGN and the global metal and mineral raw material price index.

<sup>3</sup> To achieve better compatibility, real GDP growth data have been normalised, i.e. real GDP growth was subtracted by the average value obtained and divided by the standard deviation.

Q3 real GDP growth remained high at 6.8% while stepping down by 0.3 percentage points on a quarter earlier. A breakdown of GDP by value added components indicates that the external environment had a curbing effect on the local economy, with services and agriculture being the main engines of growth. Having experienced considerable difficulties in 2007, agriculture began to recover in the second and third quarters of 2008, now reporting a robust real value added growth of 44.1%. Services, too, rebounded to 6.4%, as boosted by financial intermediation, renting and business services, and trade. At the same time, growth in the manufacturing sector slowed down to 2.1% in real terms. Export sales contracted due to the ever-deteriorating global market situation as manifested by the declining prices and foreign demand for basic Bulgarian products. On the other hand, value added in construction continued to rise at two-digit rates.

Fig. 2: Economic Activity indicator (EAI) by component



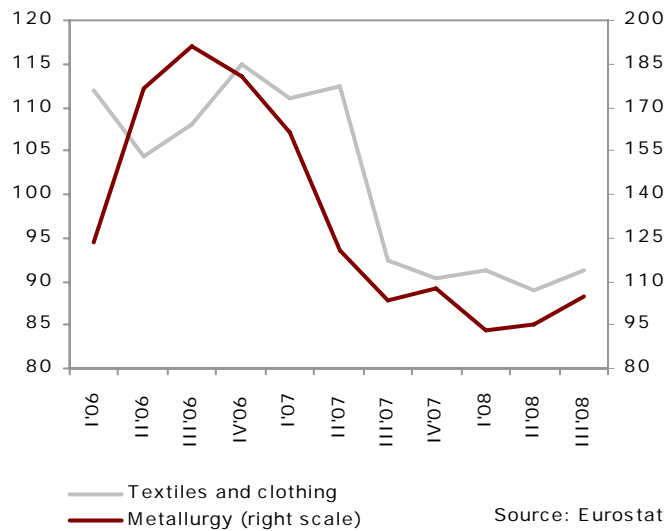
Source: A EAF estimates

The long-term component of EAI followed the same downward trend of the preceding quarters while the cyclical component hit a record low in the past few years.

## FACTORS, INFLUENCING EAI PERFORMANCE IN THE THIRD QUARTER OF 2008

**Industrial sales** Q3 sales posted the heaviest negative contribution to the composite indicator. On an annual basis, sales growth slowed down to 0.7%. Domestic sales advanced by 2.6% whereas export sales contracted by 1.4%, with a more significant negative contribution being reported by the cast iron, steel and ferrous alloy industry, gaseous fuel production and distribution, and textiles and clothing.

Fig.3. Foreign new order index in textiles, clothing and metallurgy, on an annual basis



As for metallurgy, the slump was mainly triggered by the lower global metal prices and poor demand. The production difficulties experienced by Kremikovtzi Steel Works only added to the above sales decrease. Metal manufacturers were among the main consumers of gaseous fuel, and their lower business activity may have brought about a certain sale shrinkage in the gas industry. At the same time, textiles and clothing sustained the downward trend of end-2007 for another quarter in a row, as further perpetuated by stiff external competition.

On the other hand, the industries that had the healthiest effect were as follows: food and beverages, chemicals, and plastics, growing by 6.6%, 17.7% and 26.0% respectively.

## Global metal and mineral raw material price index

The quarter-on-quarter drop in metal and mineral raw material prices made, too, a negative contribution to EAI. The price index stepped down by 2.1 percentage points to 109.3, bringing about a shrinkage in both production and export sales revenues.

Γραφ. 4: Global metal and mineral raw material price index and export sales



Source: NSI, World bank

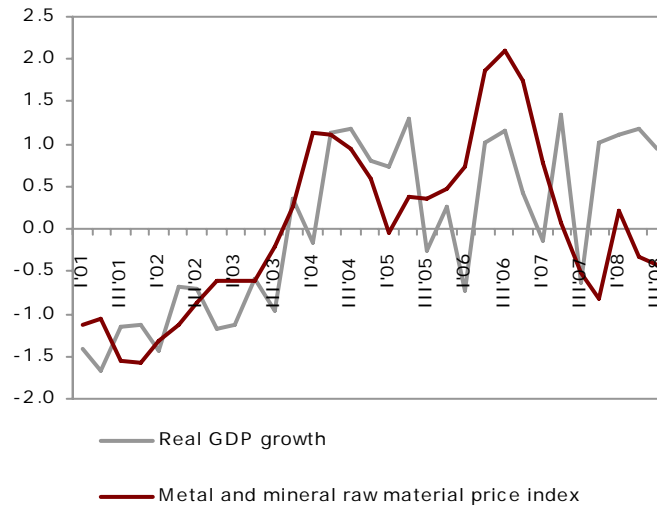
The above trend was further enhanced by the slowdown in global production and significant demand decrease in construction, transport and other sectors. Most basic metal prices went down well below their level of early July, with the drop varying from 3.9% (lead) to 32.5% (silver) on a quarter earlier. The price of copper, which accounts for about 50% of the country's non-ferrous metal exports, declined by 16.9% over the same period due to the lower EU and US demand, in construction and car manufacturing in particular. Chinese demand stepped down, too. The expectations are that copper prices will carry on decreasing throughout 2009 as a result of oversupply.

The prices of some other metals (zinc and aluminum) dropped, too. Aluminum prices decreased by 17.8% under the impact of decreasing demand, excess supplies and fast growing Chinese production and exports. Prices are expected to go further down, with excess supplies persisting well into 2009 and 2010. The price of zinc declined by 6.3% and of gold by 11.7%. Having gone up by 21.1% on average in the second quarter, the steel price index went on the decrease in September.

According to WB estimates, metal prices are expected to carry on decreasing in 2009 as well. The growth slowdown in the developing economies, which are mostly raw material-intensive, lost momentum of the investment boom in China,

growing share of the less raw-material intensive sector of services, substitution of high-priced metals with cheaper materials are expected to undermine demand in the long term.

Fig. 5: Real GDP growth and the metal and mineral raw material price index



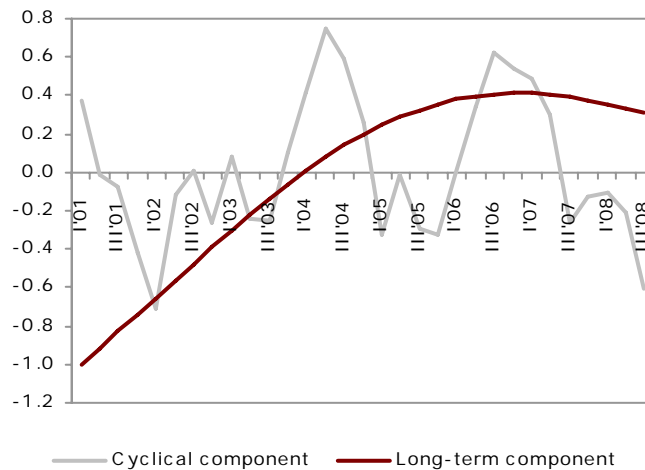
Note : Data are normalised.

Source: NSI, World bank

### Business climate in retailing

On an annual basis, the business climate indicator worsened significantly, affecting EAI performance rather adversely. Both current business situation assessments and expectations for the next half-year period deteriorated. The worsened business situation was mostly characterised by shrinking sales volumes and retention of the selling price level. Businesses also anticipated further contraction not only in sales but order volumes as well in the following quarter. At the same time, business environment uncertainty and lower demand expectations were the factors at work behind the worsening market situation on a year earlier, also explaining the deteriorating cyclical position of the business climate in retailing. In addition, the variable's long-term component was slowing down since the start of 2007 having to do with the high levels achieved shortly before the country's accession to EU.

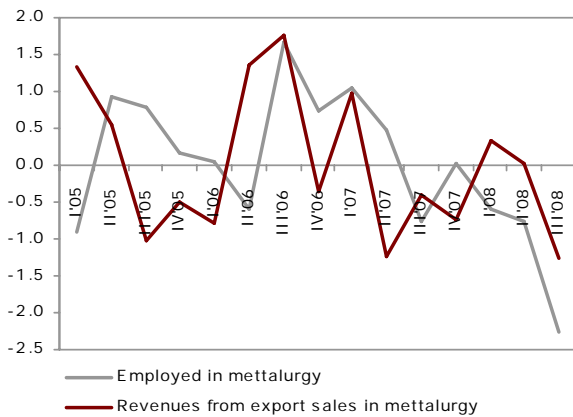
Fig. 6: Cyclical and long-term component of the business climate indicator in retailing



Source: AEAf, NSI

**Employment** The cyclical position of employment carried on deteriorating in the third quarter, posting a stronger contribution to EAI negative dynamics. The long-term component stepped down on quarter earlier, producing an adverse effect on employment change over the same period.

Fig. 7: Employment and revenues from export sales growth in metallurgy and the textile and clothing industry



Note : Data are normalised.

Source: NSI



Note : Data are normalised.

Source: NSI

According to labour force survey data, employment growth decelerated to 3.1% on a 12-month basis due to the slowdown in the processing industries and the decrease in the *electricity, heating, gaseous fuel and water supply*. The employment deceleration in the former had to do largely with the job decrease in metallurgy as well as with the weaker employment growth in textiles and clothing. Both sectors reported a year-on-year drop in Q3 value added and sales



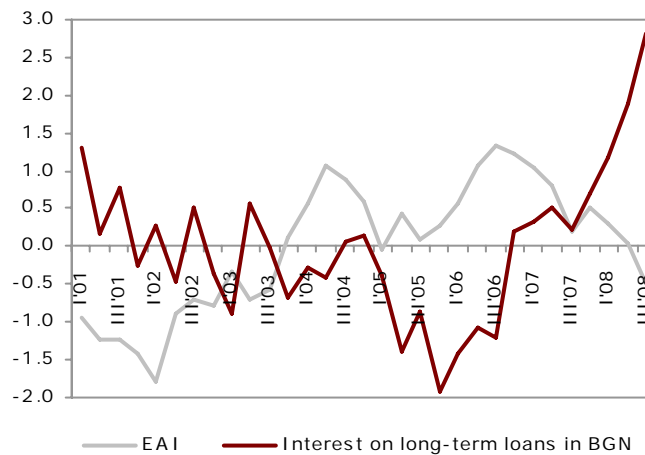
revenues mostly as a result of the declining export sales. The falling prices of some main commodities for Bulgarian exports and strong competitive pressure on the local textile industry in the foreign markets were the reason for the downward trend in these sectors' employment.

### Long-term loan interest in BGN

Long-term loan interest rates stepped up for another quarter in a row, producing an even stronger negative contribution on the EAI. Given the uncertain external environment, the cost of loan resources remained high, entailing high interbank market interest, which ultimately affected the local interest rates. Moreover, the increasing inflationary pressure in the economy persisted, although the pace of inflation in the third quarter began to slow down. And last but not least, it should be noted that the country's risk premium steadied at the high levels of the second half of 2007, triggering an increase in the interest rate spread between BGN and EUR.

However, the higher Q3 interest rates failed to affect credit demand considerably. Private-sector loan growth posted an insignificant decrease while remaining rather high at 46.7% as of the end of September. The quality of bank credit portfolios did not show any signs of deterioration due perhaps to the better quality of loan approvals as a result of the tightened bank lending policies.

Fig. 8: EAI dynamics and interest on long-term loans in BGN



Note: Data are normalised

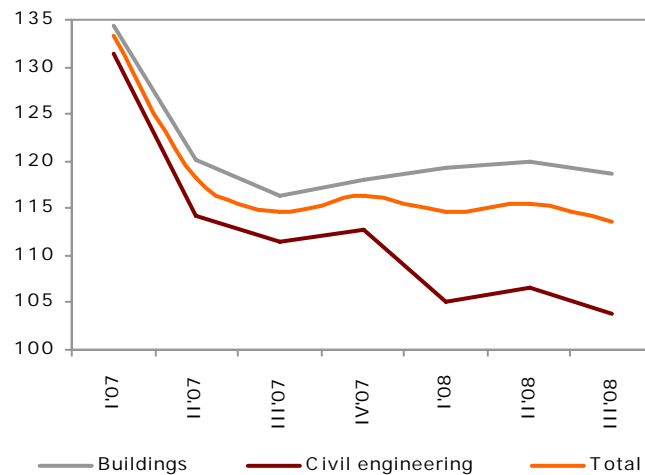
Source: AEAf estimates

The high cost of BGN loans is to be sustained in the short term, with expectations in a longer perspective pointing to retention of the current interest rate levels under the impact of the country's risk premium. A possible downward pressure on the local interest rates will be exerted by BNB measures aimed at the

stepwise decrease in the minimum required reserves – the deposit base was decreased as of early October, and the minimum required reserves cut down by 2 percentage points to 10% as of 1st December 2008. EUR interest rates are expected to step down, following the decrease in the re-fi rate effected by ECB in the preceding months.

**Construction** Q3 value added growth in construction ran at 10% on an annual basis, reporting a quarter-on-quarter rise. However, it did not produce a significant effect on the overall EAI. The different sources of data on construction did not give clear-cut indications as to the adverse influence of the external environment on the sector. Production volume<sup>4</sup> steadied at its end-of-2007 level, with some slowdown being discerned in civil construction only. At the same time, growth in building construction remained stable reporting a faster increase on a year earlier.

Fig. 9: Production index in construction, on an annual basis

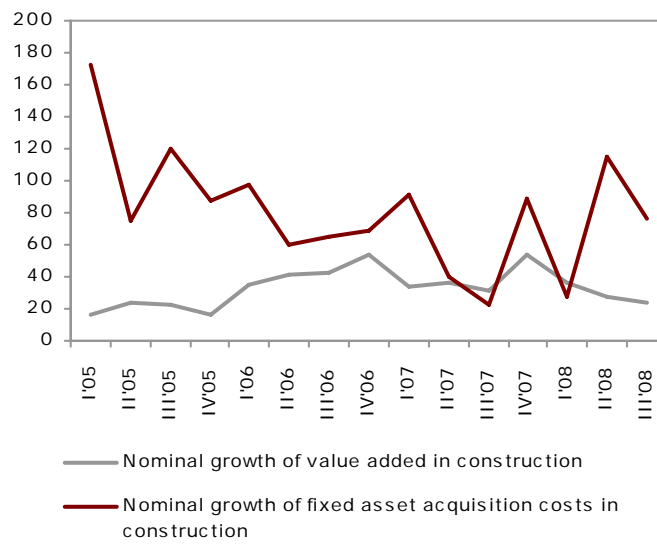


Source: Eurostat.

The quarter sustained the boosted investment activity in construction of the past few years. Fixed asset acquisition growth decelerated on a quarter earlier but the sector had the upper hand again in shaping the investments' growth overall for the economy.

<sup>4</sup> Production index for the construction sector. According to Eurostat data.

Fig. 10: Value added in construction and fixed asset acquisition costs



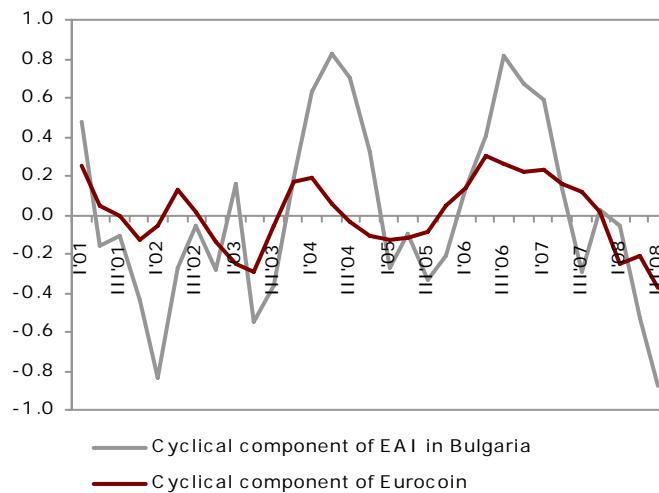
Note: Data are normalised.

Source: NSI

## DEGREE OF OVERLAPPING OF THE LOCAL BUSINESS CYCLE WITH THE CYCLE IN THE EURO AREA

Estimates of the correlation between the cyclical fluctuations in the Euro area and the local economy show that the effect of changes in the business situation in the Euro area on Bulgarian economy took place with a time lag of one period (in this case the correlation amounted to 0.75). Moreover, the local business cycle demonstrated stronger deviations from the long-term average, compared to the business cycle in the Euro area, which is due to the high dependence of Bulgarian exports on the global market situation.

*Fig. 11: Estimated cyclical fluctuations in the Euro area and Bulgaria*



Note: For more detailed data and methodological notes on the Euro area cyclical indicator EuroCoin, visit <http://eurocoin.cepr.org/>. As this is a monthly indicator, data have been averaged to make comparison with the quarterly EAI possible. In addition, since EuroCoin excludes only short-term (seasonal) fluctuations in Euro area business activity, it was also necessary to eliminate the long-term trend in the time series, using the Hodrick-Prescott filter.

Source: A EAF estimates, CERP, NSI, BNB, World Bank

The dynamics of the EAI cyclical component in Bulgaria is strongly influenced by the cyclical position of EU-25 GDP, with the correlation between the two variables running the highest in the current period and with one time lag and amounting to 0.96 and 0.55 respectively.

Q3 GDP growth in EU-25 slowed down to 0.8% on a year earlier. Business activity lost much of its impetus due to the lower domestic demand along the lines not only of consumption but investments too. Despite the eased inflationary pressure of the food and energy prices in August and September, Q3 inflation remained high on an annual basis whereas final consumption slowed down to 0.9% on a year earlier. Gross capital formation posted a real-term drop

of 0.8%. At the same time, growth in fixed capital formation decelerated to 0.1% as a result of the worsening investment environment having to do with the global financial crisis and market uncertainty. The weaker foreign demand led to a slower pace of export growth in EU-25 to 2.5%, on a year earlier. Poorer domestic demand, in turn, triggered a slowdown in imports to 1.8%.

The deteriorating external environment had not had a clear-cut effect on the local economy until mid-2008. The influence of the financial and economic crisis was mostly perceived indirectly as having to do with the increase in the interest rates and decline in the stock indices. As for the real economy, the above effect was associated with the poorer performance of the business climate indicator and slower sales growth. The third quarter, however, witnessed a decrease in value added in the manufacturing industries. The expected growth slowdown in Bulgaria's major trading partners will entail weaker foreign demand for local exports and turn out to be the main source of economic repercussions of the global crisis on the local economy. This, together with the lower capital inflows expected as a result of the re-assessed investment risk and altered lending policies of both local and foreign financial institutions, will undermine the country's business activity.

***Rationale and advantages of the Economic Activity Indicator. Some methodological notes***

*The Economic Activity Indicator (EAI), constructed at AEF, is aimed at assessing the current state of affairs in the Bulgarian economy. Being a composite indicator it enjoys a number of advantages:*

*If the data on the variables, making up EAI are revised, the composite indicator's change will run significantly lower than the revisions made to GDP data.*

*GDP dynamics is sometimes susceptible to sector-specific factors that are often discrete or temporary by nature, and should therefore not be treated as factors affecting the overall economic situation. The breakdown of every time series into a common and specific component allows for the elimination of the impact of temporary and specific factors as well as for adjustments of likely errors in gauging a variable.*

*EAI has been calculated based on a dynamic factor model applied to quarterly data sets of 63 macroeconomic time series for both Bulgaria and the world business situation. Subsequently, the number of variables making up the indicator has been reduced to eight, with each variable being exploited with its real change in a given quarter on a year earlier. The variables, making up EAI are as follows: GDP, value added in construction, employed numbers, EU-25 GDP, industrial sales, business climate in retailing, long-term loan interest in BGN, and the metal and mineral raw material price index of the World Bank.*

*Estimates of the cyclical component of EAI have been made by eliminating: (1) the long-term component calculated using the Hodrick-Prescott filter with a multiplier  $\lambda = 1600$ . Although the HP filter has been in the limelight of much controversy, it remains the most widely used technique of detrending economic series; (2) the short-term component, accounting for fluctuations within a year that has been estimated using a moving average with 4 lags.*