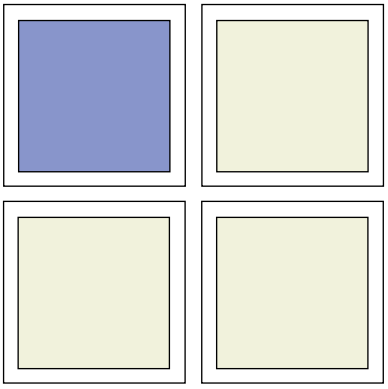
BULGARIA COMPETITIVENESS REVIEW



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AGENCY FOR
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ANALYSIS AND
FORECASTING

1000 Sofia, 1 Aksakov Str.; tel. 9859 56 01, 981 65 97; fax: 981 33 58; e-mail: aeaf@aeaf.minfin.bg; www.aeaf.minfin.bg

Statistical symbols

%	Percentage
2006	Calendar year (e.g. from 1.1.2006 to 31.12.2006)
2007 – 2009	Period of several calendar years
y-o-y	Year on year comparison
H2 2009	Second half of a year 2009
Q1 2000	First quarter of a year 2000
EU27 = 100	The European Union 27 Member states' average

Acronyms and abbreviations

AEAF	Agency for Economic Analysis and Forecasting
ARC Fund	Applied Research and Communications Fund
BNB	Bulgarian National Bank
CE	Compensation per employee
CEE	Central and Eastern Europe
CPI	Consumer Price Index
ECB	European Central Bank
EU	European Union
Eurostat	The statistical office of the European Union
FDI	Foreign Direct Investment
GCF	Gross Capital Formation
GDP	Gross Domestic Product
HICP	Harmonised Index of Consumer Prices
HICP-CT	Harmonised Index of Consumer Prices at constant taxes
IMF	International Monetary Fund
LFS	Labour Force Survey
LP	Labour productivity
NMS	Refers to Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic and Slovenia
NSI	National Statistical Institute
OECD	Organisation for Economic Co-operation and Development
PPI	Producer Price Index
PPS	Purchasing Power Standard
R&D	Research and development
REER	Real Effective Exchange Rate
RULC	Real Unit Labour Costs
ToT	Terms of Trade
ULC	Unit Labour Costs
WTO	World Trade Organisation
XCI	Export Competitiveness Index
EU27	European Union (27 Member States)

Contents

The present report makes an assessment of Bulgaria's stance in terms of competitiveness based on the following OECD definition[1]: *Competitiveness is the degree to which a nation can, under free trade and fair market conditions, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long-term.*

The way it is formulated, the above definition consists of three important parts:

1. The ability of the economy to meet international requirements, assuming
2. Free trade and market conditions, while
3. Increasing its incomes over the long-term.

Accordingly, the current publication is structured as follows: first, developments of the main competitiveness indicators are briefly outlined in the Keypoints section. The indicators selected to measure Bulgaria's competitiveness include:

- Country's export share in world trade;
- Real effective exchange rate (REER) deflated by producer price index (PPI);
- REER deflated by unit labour costs (ULC);
- Energy prices index adjusted for exchange rate differences;
- Turnover in innovation activities, and
- Investment (gross fixed capital formation).

The first indicator measures the current position of the country on the international markets. Indicators 2-4 are used to assess Bulgaria's price and cost competitiveness, while the last two indicators give an idea of the country's long-term potential to enhance competitiveness.

The part on the Economic Environment evaluates Bulgaria's position in terms of free trade and markets and expanding real incomes in Bulgaria. Additionally, several indicators of the quality of institutions in Bulgaria are also presented as they are also important part of the economic environment, in which the country is expected to improve its competitiveness. The indicators presented in this part are viewed as constraints, under which the main competitiveness indicators should improve in order to claim that national competitiveness is upgrading.

Finally, in the Underlying Analysis of the report there is a more in-depth analysis of the developments outlined in the Keypoints, where other complementary sources of information are studied to give a more comprehensive picture of the position of the country in terms of its competitiveness.

[1] OECD, 1996, Industrial competitiveness, OECD, Paris. Cited in Garelli S. "Compatitiveness of Nations: The Fundamentals", available at: http://www.imd.ch/research/centers/wcc/upload/Fundamentals.pdf.

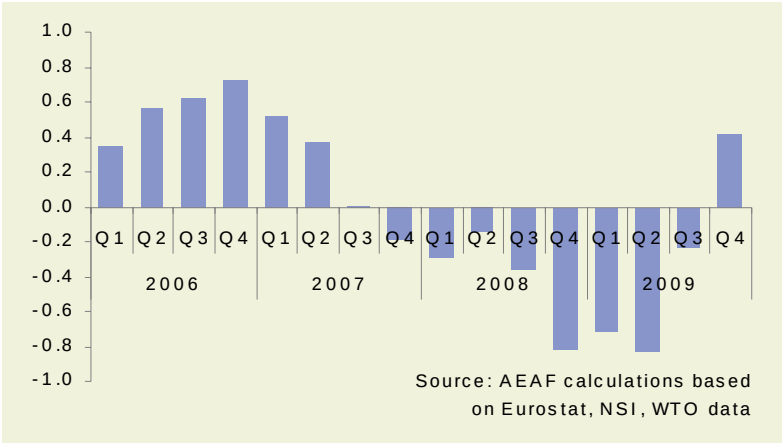
Particularly, concerning real effective exchange rate (REER), there are several measures which are used to measure price competitiveness. The main purpose of our analysis is to assess external price competitiveness and how producers set prices to maintain market shares. The CPI (HICP) deflated REER is probably the most often used indicator on a monthly bases but it includes indirect taxes, imported goods and non-tradable goods (services) and is also affected by price controls. The REER deflated by export prices covers only tradable goods and services and represents the most obvious choice for measuring price competitiveness. This indicator, however, does not include all potentially tradable goods. It covers only those tradable goods that are sufficiently low priced to be exported[2]. An export-based index of competitiveness provides little information on the relative profitability of domestic vs. foreign traded goods. The REER deflated by industrial producer prices is chosen to approximate prices of tradable goods. It includes not only exported goods but also those traded on the domestic market. The advantage of the producer price index is that similarly to CPI, it is calculated on the principle of a basket of goods. We view the PPI deflated REER as the most indicative measure for external price competitiveness.

[2] Exchange Rates and Economic Fundamentals. A Framework for Analysis, IMF, December 1994.

Keypoints

In the last quarter of 2009 Bulgaria's competitiveness improves significantly y-o-y, implying a slight gain of competitiveness for H2 2009[3]. Favourable development of relative prices and costs underpin enhancements in Bulgaria's competitiveness and are also mirrored in an expanding share in world merchandise trade. Innovation and investment are still declining by the end of 2009, reflecting the general economic downturn in Bulgaria. Prior to 2008 improvements in Bulgaria's competitiveness were attributed to expanding market share of Bulgarian exports and growth in innovation and investment activities. Meanwhile, nominal convergence with the rest of EU was reflected in worsening price and cost indicators.

Fig. 1:
Index of the annual change in Bulgaria's competitiveness

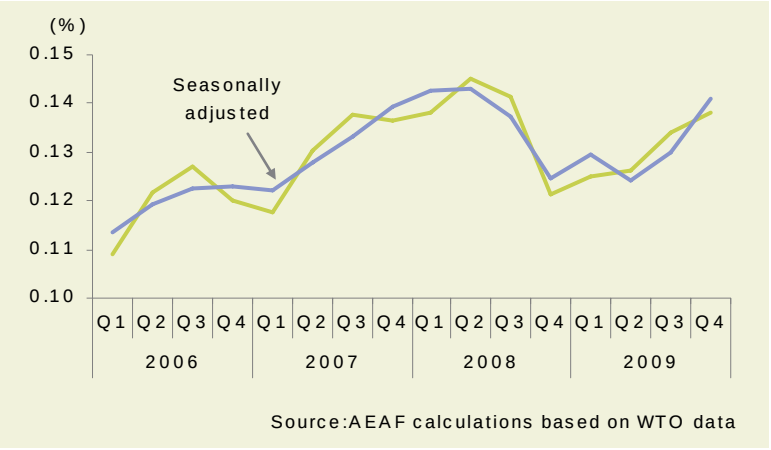


Main Competitiveness Indicators

Bulgaria's merchandise export share in world trade is returning to its pre-crisis values after the slump in late 2008-early 2009, which was mainly due to contracted world demand and was reflected in lower metals, textiles and food prices.

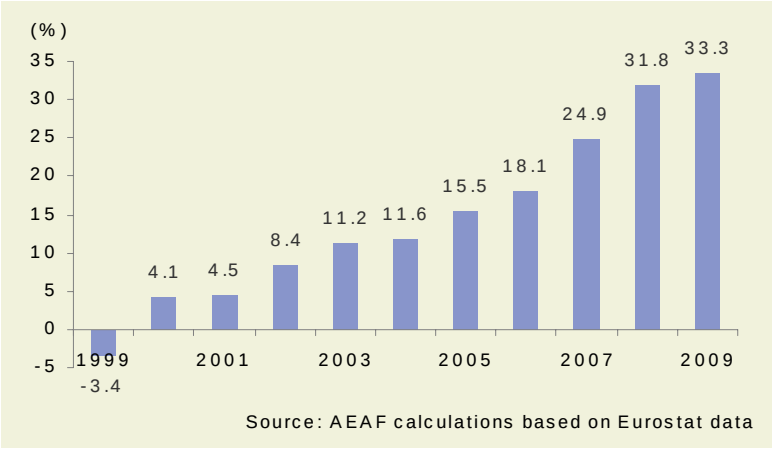
[3] Based on the index of the annual change in Bulgaria's competitiveness. The latter is calculated as a weighted average of the six summary indicators. The indicators are calculated in terms of centered and standardized annual changes. The weights are chosen, so that all aspects of competitiveness, considered here – demand, price, cost and potential for competitiveness – have equal importance. Thus the weights are as follows: 0.25 for Bulgaria's share in world trade and REER deflated by PPI and 0.125 for the rest of the indicators.

Fig. 2:
Bulgaria's market share in world merchandise trade



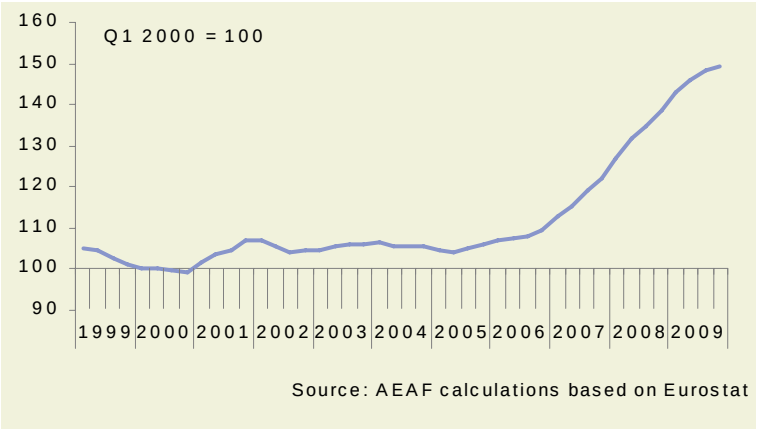
In the second half of 2009 appreciation of real effective exchange rate (REER) deflated by PPI decelerated and by the end of period real appreciation stood at only 1.1%.

Fig. 3:
REER deflated by PPI vs. (rest of) EU27 (accumulated end of period data since Jan 1999)



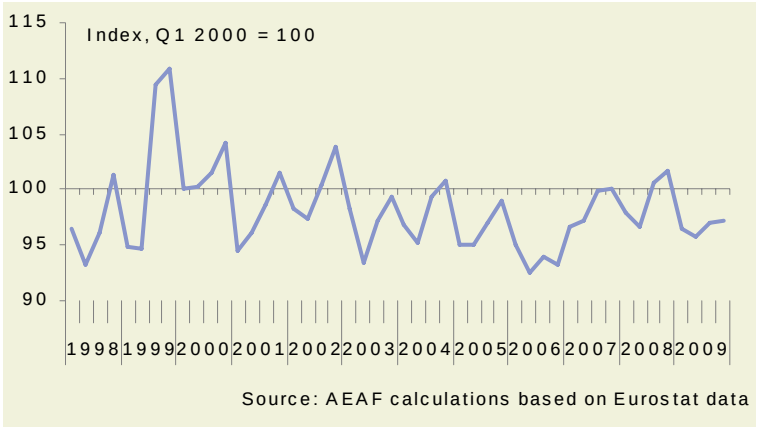
In 2009 the real ULC in Bulgaria grew with higher pace than in EU27. All gains which Bulgaria realized during 1998-2006 period was almost lost in the last three years.

Fig. 4:
REER deflated by ULC against (rest of) EU27



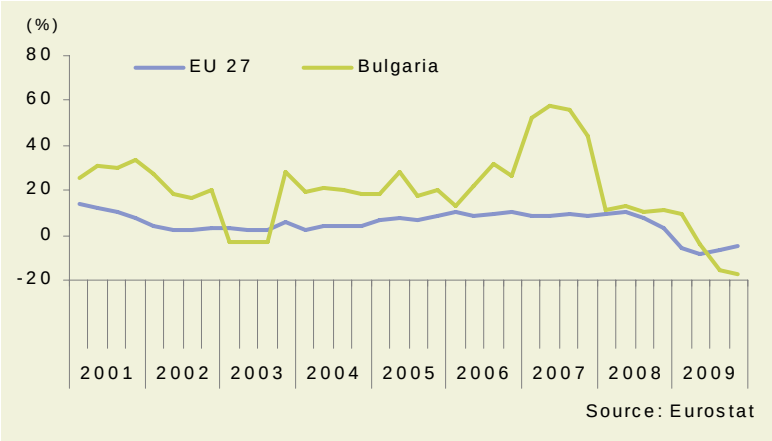
The energy price index is on the downward trend during the second half of 2009 led by lower coal, electricity and liquid fuels prices.

Fig. 5:
Enegy price index Bulgaria compared to the rest of EU27



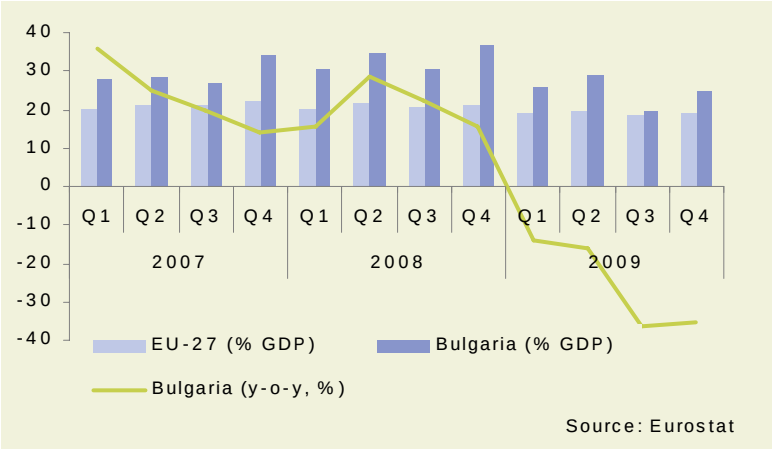
Innovation activity is frozen in times of economic downturn in an attempt of enterprises and government to pursue aggressive cost-saving strategies.

Fig. 6:
Turnover in Professional, Scientific and Technical Activities, y-o-y



Investment being the most volatile GDP component, also plummeted in 2009 reflecting the unfavourable economic environment in Bulgaria and worldwide. Gross fixed capital formation dropped by 27% y-o-y in 2009.

Fig. 7:
Gross Fixed Capital Formation



Free Trade

Based on the tables below, it could be concluded that the assumption of free trade is fairly well validated. Bulgaria's score in terms of trade freedom, according to the Heritage foundation Economic Freedom, is constantly improving, reaching 87.4 out of 100 in 2010. Bulgaria's trade policy coincides with the EU-wide trade policy.

Table 1: *Indicators of Bulgaria's degree of trade freedom*

Indicator	2007	2008	2009	2010
Cost to Export - US $ per container (according to Doing Business report)	1 233	1 329	1 626	1 551
Trade Freedom - Index of Economic Freedom (The Heritage foundation)**	70.8	86.0	85.8	87.4

Source: Doing Business, Index of Economic Freedom

* *According to the Economic Freedom Report, the lowest degree of freedom is rated with 0, while 10 is the highest degree of freedom.*

** *Trade freedom is a composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services. The trade freedom score is based on two inputs: the trade-weighted average tariff rate and non-tariff barriers. The index is on a scale from 0 to 100, where 100 represents the maximum freedom.*

Table 2: *Comparison between Bulgaria and the rest of NMS in terms of degree of trade freedom*

Source	Doing Business - 2010	Index of Economic Freedom - 2010
Geo \ Indicator	Cost to Export (US $ per container)	Trade Freedom
Bulgaria	1 551	87.4
Czech Rep.	1 060	87.5
Estonia	730	87.5
Latvia	600	87.5
Lithuania	870	87.5
Hungary	1 225	87.5
Poland	884	87.5
Romania	1 275	87.5
Slovenia	1 075	87.5
Slovakia	1 445	87.5

Source: Doing Business, Index of Economic Freedom

Real incomes

For a country to improve its competitiveness it is important that it enhances its performance on external markets without hampering people's incomes and living standard. Real GDP declined in Bulgaria in 2009 in line with global economic

slowdown. However this contraction is attributed entirely to cyclical factors and in a longer term Bulgaria has posted strong growth rates of real incomes, which have resulted in fast real convergence to average EU incomes

Fig. 8:
Real GDP Growth

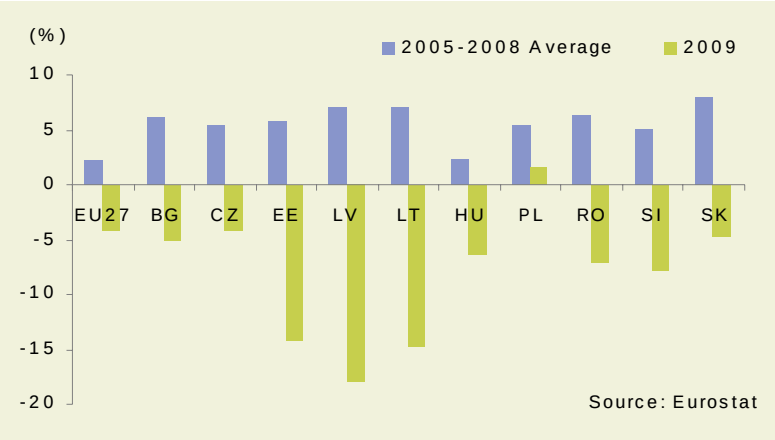
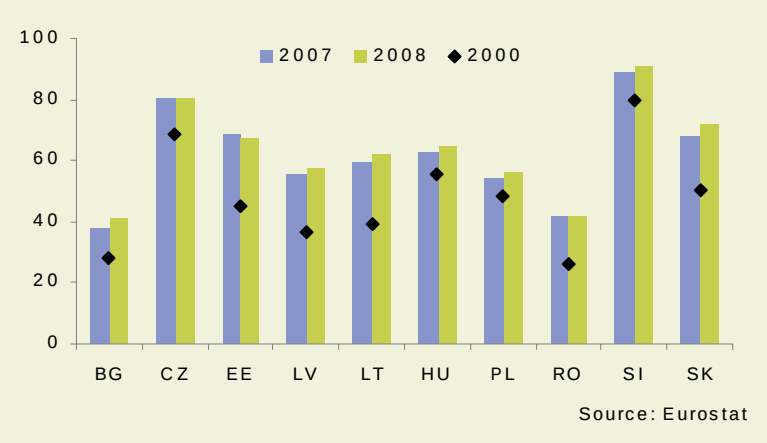


Fig. 9:
GDP p.c. in PPS (EU27 = 100)



Institutional Framework

According to the latest Global Competitiveness Report, the quality of institutions in Bulgaria has slightly deteriorated in 2009. Generally, Bulgaria's ranking in terms of institutions is rather low compared to the average ranking of the country. Bulgaria performance remains unsatisfactory when it comes to organized crime and reliability of police services, protection of minority stakeholders' rights and transparency of government policymaking.

2010 Index of Economic Freedom indicates a general decline in all indicators related to competitiveness, except for business freedom and property rights. Furthermore, institutional weaknesses are pointed as main factors hampering the improvement of the economic freedom in the country, reflecting lower points granted to Bulgaria, compared to its peers in terms of property rights, freedom from corruption and investment freedom. The country ranks fairly well in business and labour market freedom.

Table 3: Indicators of Bulgaria's general institutional set-up

Global Competitiveness Subindex Institutions			Index of Economic Freedom**						
	Rank	Score (1-7)*		Business Freedom	Monetary Freedom	Investment Freedom	Property Rights	Freedom From Corruption	Labor Freedom
2006-2007	109/125	3.07	2007	70.3	75.8	60.0	30.0	40.0	79.8
2007-2008	109/131	3.22	2008	68.4	73.7	60.0	30.0	40.0	80.6
2008-2009	111/134	3.28	2009	73.5	72.8	60.0	30.0	41.0	78.4
2009-2010	116/133	3.20	2010	77.8	69.5	50.0	30.0	36.0	78.1

Source: Global Competitiveness Report, Index of Economic Freedom

* *According to the scale of the Global Competitiveness Index '1' corresponds to the lowest score and '7' corresponds to the highest score.*

** *On a scale from 0 to 100, with 100 accounting for best performance.*

Table 4: Comparison between Bulgaria and the rest of NMS in terms of general institutional environment

Geo	Subindex Institutions 2009-2010		Index of Economic Freedom - 2010					
	Rank (out of 133)	Score (1-7)	Business Freedom	Monetary Freedom	Investment Freedom	Property Rights	Freedom From Corruption	Labor Freedom
Bulgaria	116	3.19	77.8	69.5	50.0	30.0	36.0	78.1
Czech Rep.	62	3.93	65.5	75.6	70.0	65.0	52.0	76.4
Estonia	31	4.85	83.1	71.1	90.0	80.0	66.0	47.0
Latvia	65	3.91	72.9	67.0	80.0	55.0	50.0	59.1
Lithuania	59	4.00	82.0	70.8	75.0	55.0	46.0	58.5
Hungary	76	3.77	76.8	74.1	75.0	65.0	51.0	67.6
Poland	66	3.90	62.2	78.1	60.0	55.0	46.0	61.5
Romania	84	3.68	72.5	73.3	75.0	40.0	38.0	60.4
Slovenia	46	4.47	83.3	76.0	70.0	60.0	67.0	43.5
Slovakia	78	3.74	72.6	78.2	70.0	55.0	50.0	65.1

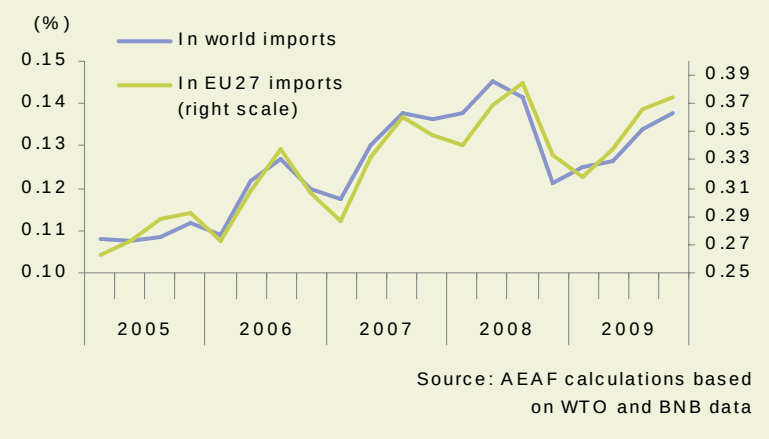
Source: Index of Economic Freedom

Underlying Analysis

Demand Competitiveness

Bulgarian export performance significantly deteriorated in late 2008 – early 2009, reflecting both shrinking external demand and lowering international prices of important export commodities such as metals, textiles and food. The merchandise export decline in values was around 23%, while real volumes shrank by around 11%, so more than 50% of the contraction was due to price developments in international markets. Bulgaria supplies homogenous products at international markets that generally have close analogues and are thus highly sensitive to international price changes. In this way, Bulgarian exports contracts much more in times of global turmoil as compared to countries that are oriented towards more differentiated products.

Fig. 10: *Bulgaria's Share in World Trade*

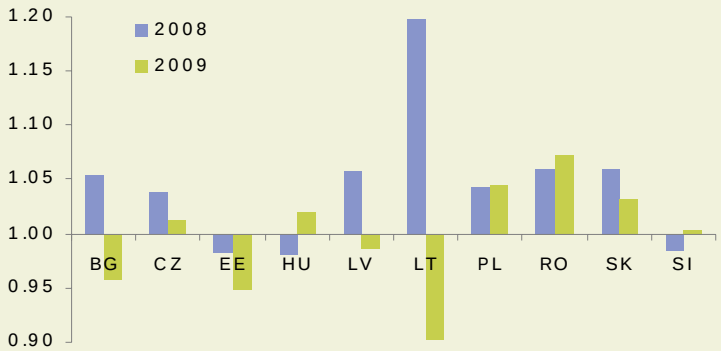


Signs of revival of the EU economies, which are Bulgaria's main trading partners (around 64% of total exports in 2009) and increasing world prices in the second half of 2009, have led to a nearly restored pre-crisis market share of Bulgarian exports both in world trade and in the EU-27 imports alone.

Globally, for the entire 2009, there is a decline in the export share of the country. The dynamics of the export competitiveness index (XCI)[4] also suggests that Bulgaria has lost some competitiveness at the world market during the last year. Bulgaria's Export Competitiveness Index of merchandise dropped from 1.05 in 2008 to 0.96 in 2009.

[4] Export competitiveness of country *i* in export of product *a* $(XCI_{ia})_t$ is expressed as a ratio of word market share of county i in export of *a* in period *t* (the period under consideration) to its world market share in the previous period. If *XCI* of a product takes a value greater than one, this points towards rising export competitiveness. Similarly, a value less than one implies declining market share in world markets $(XCI_{ia})_t=(X_{ia}/X_{wa})_t/(X_{ia}/X_{wa})_{t-1}$ (Amir, M. (2000). Trade Liberalization and Malaysian Export Competitiveness: Prospects, Problems and Policy Implication).

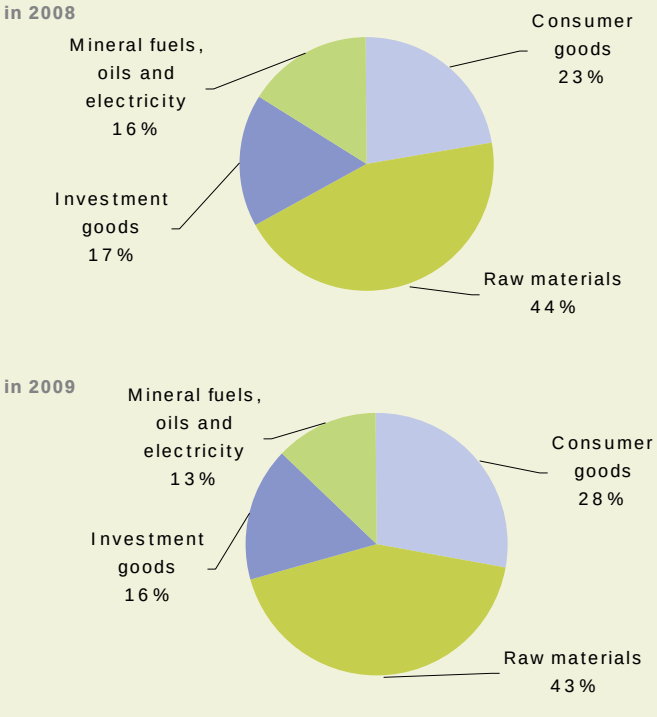
Fig. 11:
Merchandise Export Competitiveness Index



Source: AEAF calculations based on WTO data

The largest negative contribution to the dynamics of exports had the sub-sector of "Petroleum products", decreasing by around 40% in nominal terms. Together with the exports of "Raw materials", they are the backbone of the Bulgarian foreign trade. Out of the raw materials, the largest decline was observed in the non-ferrous metals, where the sales revenues are also largely dependent on the cyclical position of the global economy. Exports of clothing were the third largest contributor to the overall exports contraction. Negative trends in the sector have been observed since 2008, but were intensified by the deepening economic slump. In 2009, the decline in apparel production was 26% y-o-y. In addition to the reducing global demand, the reason for the unfavourable development of this manufacturing sector was the increasing competition in the European market by Chinese and Indian producers.

Fig. 12:
Bulgaria's Merchandise Exports Composition



Source: BNB, AEAF

Services exports declined much less than merchandise exports – by 9% in value. The contraction was almost entirely attributed to transportation and travel. Positive net services balance however increased in 2009, which can be interpreted as an indication of improving competitiveness.

Fig. 13:
Bulgaria's Services Exports Composition

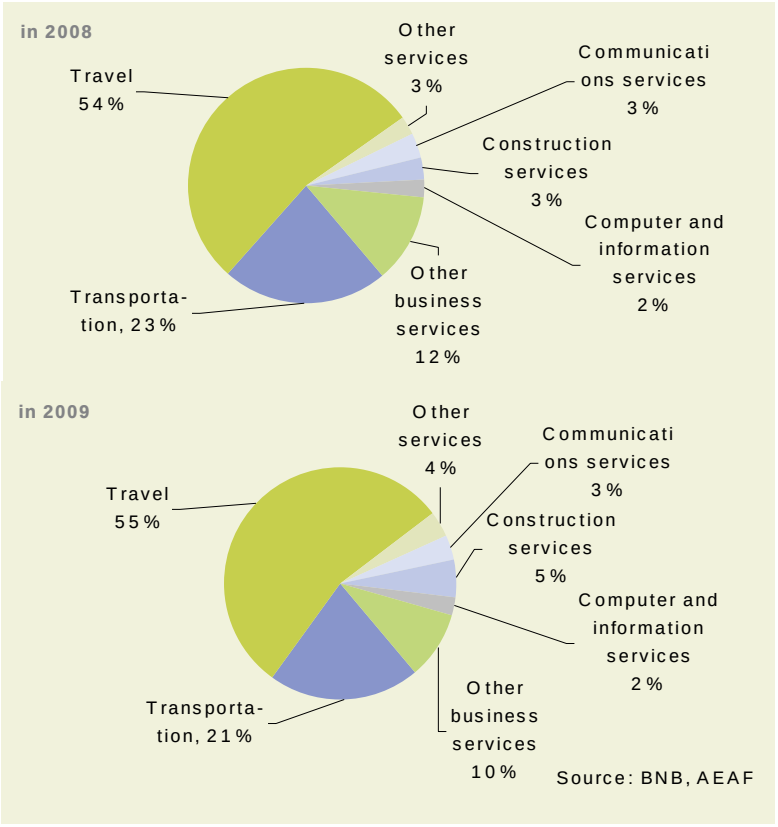
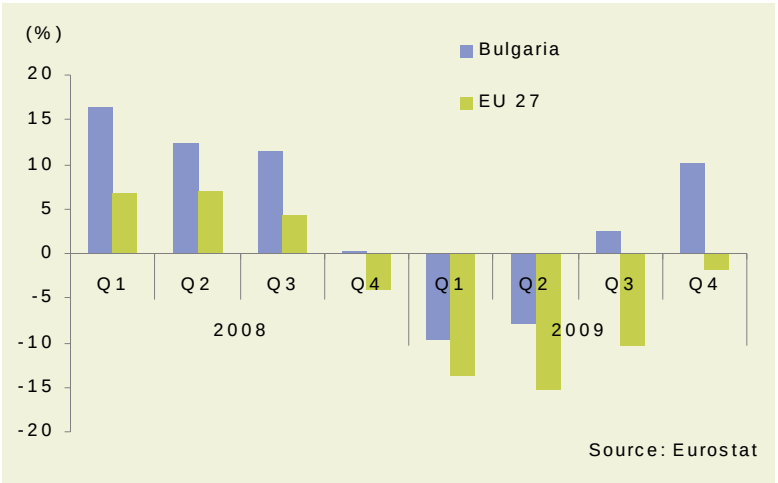


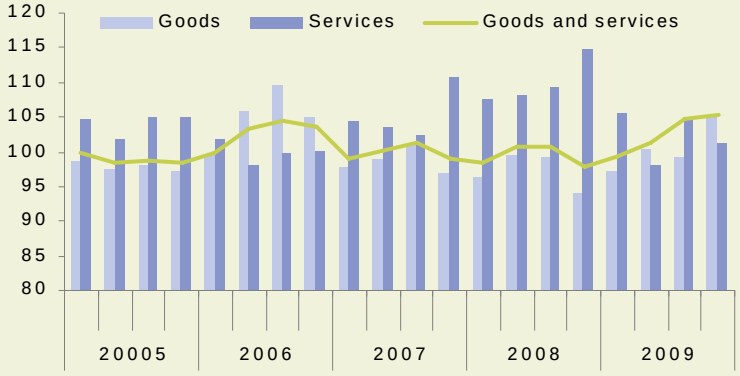
Fig. 14:
Growth in Exports of Goods and Services (y-o-y)



Bulgaria's terms of trade (ToT) are improving in 2009, implying that the country can receive more imports for a unit of its exported goods or services. In a longer time span, since 2005, increasing ToT indicate that Bulgaria's price competitiveness is bettering despite unfavourable REER and ULC developments.

There might be some quality improvements of the products exported (signalled by a shift of exports structure towards higher technology products), but main reasons for favourable ToT developments are in increasing prices of intermediate consumption goods like metals, which account for a large portion of Bulgarian exports. Rising world prices of intermediate consumption goods are associated with higher demand from large emerging economies like China and India. These countries, on the other hand, contribute to a much increased competition in a number of industrial and consumer goods and substantially reduced prices for Bulgarian imports, thus further augmenting Bulgaria's ToT.

Fig. 15:
Terms of Trade (y-o-y)

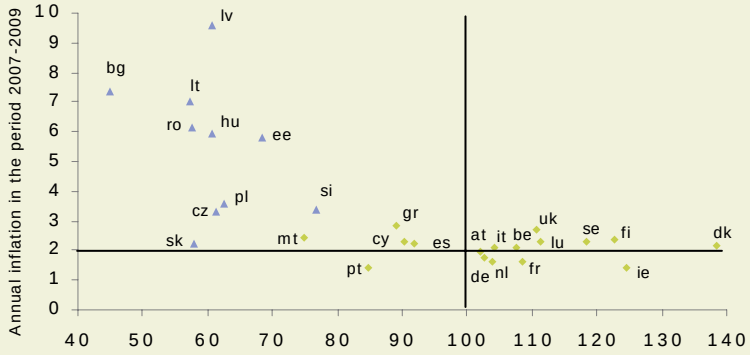


Source: AEAF calculations based on NSI data

Price Competitiveness

Price competitiveness is assumed to be improving when domestic prices increase in a slower pace than that in trading partners. Thus price level is of great importance when comparing inflation dynamics in the different countries.

Fig. 16:
HICP Price Level (2006) and Inflation (2007 - 2009), EU Member States



Comparative price level (EU27=100) based on Household final consumption expenditure

Note: Country names are abbreviated according to the ISO standart codes.

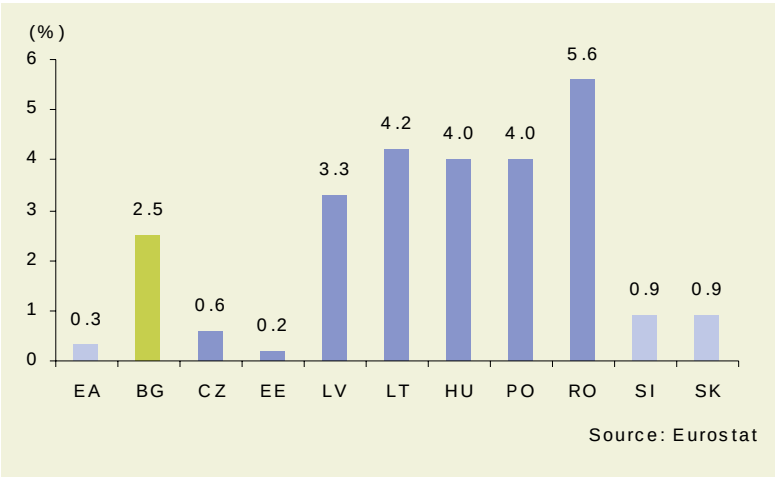
Source: AEAF calculations based on Eurostat data

The price convergence is marked by higher inflation rate in countries, where price level is initially lower[5]. The old member states of the EU, where the price level is near or above 100, experience relatively low inflation – close to the 2% target, which is observed by the ECB authorities as a measure of price stability in the medium term. Countries marked with triangles are the new member states in CEE, which joined the EU after 2004. They started the convergence process on a rather lower price level, thus experiencing higher inflation rates.

The chart above compares the price levels in 2006, a year before Bulgaria has acceded to the EU, to the average inflation rate in 2007-2009. During this period the average inflation rate of 7.4% in Bulgaria is among the highest in the EU, though the price level stays the lowest among the 27 member states. Besides the lower price level, another factor explaining differences in inflation rates are hikes in the regulated prices[6], as well as the harmonization of excise duty legislation. According to Eurostat estimates, the HICP-CT index, where tax rates are kept constant, increases by an annual average rate of 6.8% in the period observed. Different consumption structure in Bulgaria also affects prices and price level rates of change.

Until mid-2008 domestic inflation kept growing on an accelerated rate, reaching 14.5% in June y-o-y. Among the drivers behind this trend were high international prices of energy and non-energy commodities, domestic demand expressed in increasing consumption and investment. Despite high inflation rate, real wages also grew by accelerated pace fuelled by labour market shortages. In the second half of 2008 inflation started to decrease, fuelled again by external factors like decreasing commodity prices on the world markets, which in turn have been affected by global economic downturn. The disinflation process continued through 2009, thus the HICP reached 1.6% at the end of the year. Its average annual rate of change stood at 2.5%, which was among the lowest inflation rates compared to the CEE countries outside the euro area.

Fig. 17:
HICP - Annual average inflation rate in 2009

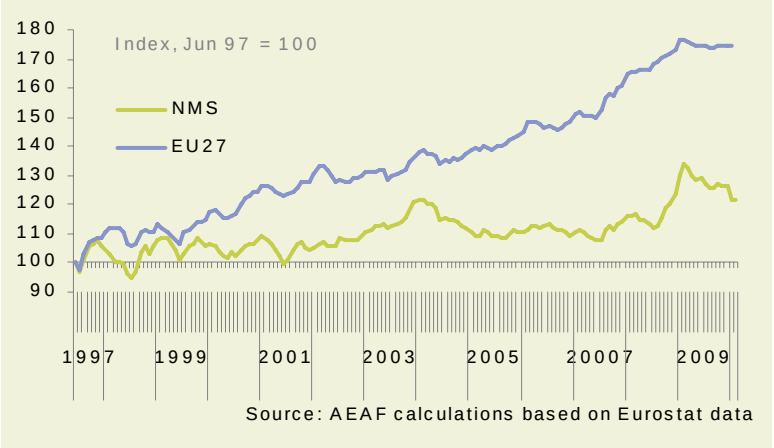


[5] Rogers (2001) brings direct evidence for price convergence in Europe. He founds statistically significant negative relation between initial price level and subsequent inflation rate.

[6] Administered prices cover all goods and services the prices of which are fully (directly) set or mainly (to a significant extent) influenced by the government (central, regional, local government including national regulators). Coverage: water supply, refuse and waste collection, electricity, heat energy, pharmaceutical products, hospital services, vignette fees, railway passanger transport, local public transportation charges, postal services, education fees in public educational institutions (universities' fees), childcare, legal services and administrative fees.

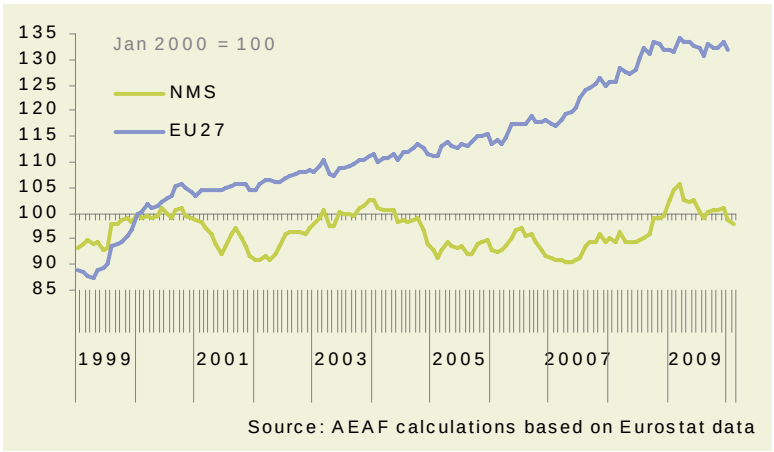
Relatively low inflation rates in Bulgaria during 2009 improved the HICP deflated real exchange rate. Since the beginning of 2009, the accelerated real appreciation of the BGN against currencies in the rest of EU27 has stopped. While compared to the other new member states in CEE, the BGN has even depreciated in real terms, which reveals some positive signs of improvement in price competitiveness.

Fig. 18:
REER deflated by HICP



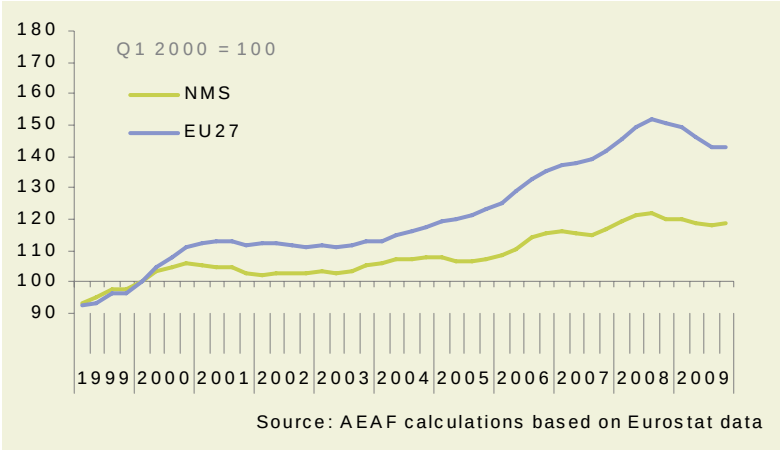
The price competitiveness measured by industrial producer prices has also improved during 2009. Developments in the PPI deflated REER are similar to the HICP deflated exchange rate. Real appreciation against rest of EU27 has stopped, while against the NMS the index even depreciates.

Fig. 19:
REER deflated by PPI



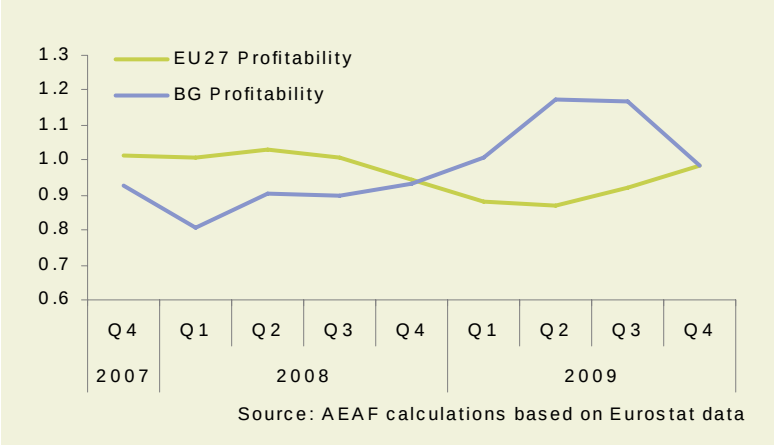
Improvements in the external competitiveness are signalled also by the prices of exports deflated exchange rate compared to the rest of EU27, as well as to the NMS. Since Q4 2008 prices of exported goods and services reduced against those in the trading partners. This is also the period when Bulgarian economy has experienced world downturn effects, resulting into diminishing demand.

Fig. 20:
REER, deflated by export prices



Improving or, at least, sustained price competitiveness seems to be maintained at the expense of lowering profit mark-ups. Profitability of producing tradable goods[7] indicator both in Bulgaria and EU27 is currently below 1, implying that y-o-y value added prices are increasing at a slower pace than ULC and therefore there is a loss of profitability.

Fig. 21:
Profitability of Producing Tradable Goods (y-o-y)

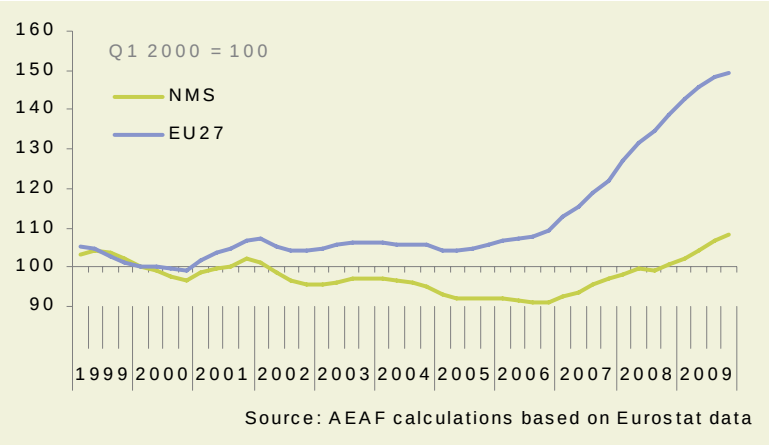


Cost competitiveness

Unit labour costs increased considerably in the period 2007-2009. Until 2007 the ratio between wage growth and labour productivity was very favourable and REER with deflator ULC did not indicate real appreciation. In the last three years however compared to its trading partners from EU27 and NMS, Bulgaria lost its cost competitiveness, gained in the previous seven years.

[7] The indicator is calculated as a ratio between the deflator of the value added in manufacturing and the nominal unit labour costs in manufacturing (see: http://www.bis.org/publ/econ39.pdf?noframes=1). Manufacturing is assumed to be representative of the tradable sector in the economy.

Fig. 22:
REER, deflated by ULC

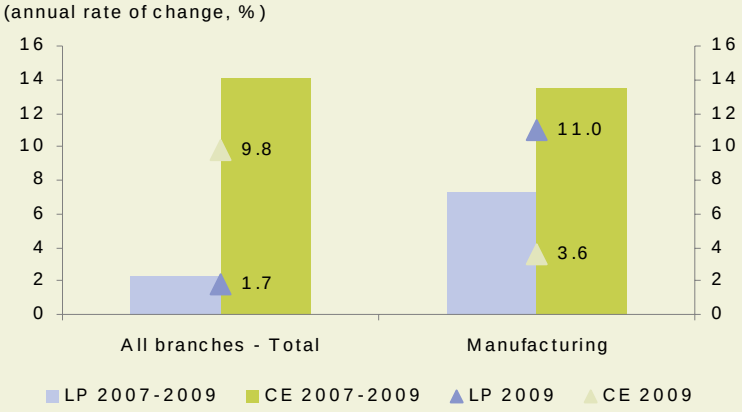


In the period after the establishment of the Currency Board labour productivity in Bulgaria compared to EU27 accelerates both for total economy and manufacturing. Worsening competitiveness in terms of ULC is attributed to higher growth rates of the compensation per employee against the growth rates of labour productivity in the period of 2007-2009. In 2007 and 2008 labour productivity was on a pace of a stable increase, however disparities between supply and demand of labour with appropriate skills in certain economic activities (manufacturing and construction) put upward pressure on nominal wages growth and unit labour costs increased. I lthough non-tradable sector (service sector and construction) reacted to the changed economic environment with a delay, in the fourth quarter of 2009 RULC in this sector decreased as well by 1.7% y/y.

In 2009 the country's nominal average wage growth decelerated compared to the previous year. Since mid-2009 it has been frozen in the most of the economic industries as during the last months of the year some of them (such as construction and manufacturing industries) reported decrease in wages on a monthly basis. From the point of view of competitiveness recent wage developments have favourable impact on real unit labour costs (RULC). The enterprises in tradable sector have reacted in line with the decreased economic activity and have managed to adapt their labour cost as RULC decreased by 7.1% y-o-y. Although non-tradable sector (service sector and construction) reacted to the change economic environment with a delay in the fourth quarter of 2009 RULC there decreased as well by 1.7% y/y.

In 2009 competitiveness in industry is improving, implying that the growth rate of labour productivity (11%) for Bulgaria as compared to EU27 is higher than the relative increase in wages (3.6%).

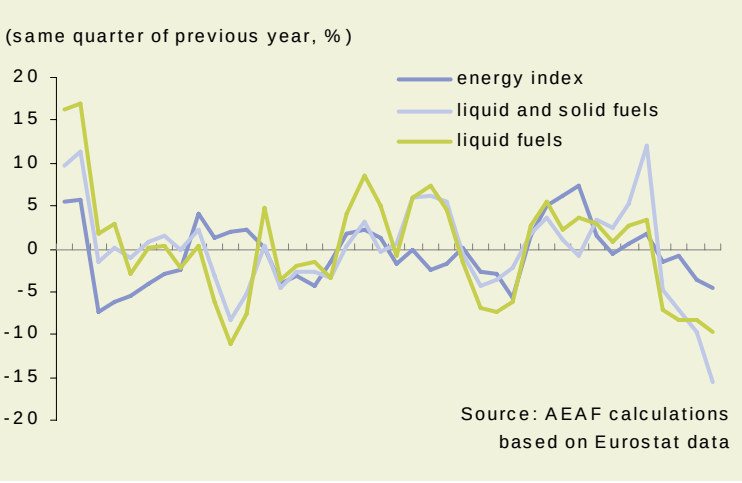
Fig. 23:
Labor productivity (LP) and Compensation per employee (CE) Bulgaria vs (rest of) EU27



Europe being in crisis during 2009, in EU as a whole the labour productivity drop in manufacturing was by 10.5% - much higher than the decrease of 0.7% registered in Bulgaria.

Besides labour input, companies in Bulgaria have also high intermediate consumption of energy and are therefore dependent of changes in the energy prices. The energy price index, constructed in AEAF, aggregates price developments of different energy goods. Some of them to a great extend depend on international commodity price dynamics, like fuels, natural gas; others are affected indirectly - through production costs, which is the case of electricity and heat energy. Administrative decisions, as well as excise duty harmonisation are other sources of influence. Historically, the weighted average energy price index, calculated for Bulgaria against trading partners in the EU27, shows no loss of competitiveness since Q1 2000 until nowadays, as it is negative as of the end-2009.

Fig. 24:
Energy price index, Bulgaria vs (rest of) EU27



Considered on an annual basis, the aggregated index of domestic energy prices declined by 4.5% in Q4 2009 compared to the same quarter of the preceding year. Domestic coal prices largely accounted for this decrease, as they plunged by 15.5% on an annual basis in end-2009 compared to the other EU countries. Main drivers behind this trend were week demand on world markets, as well as some base

effects from dramatic increases in coal prices during 2008 and underlying supply shortages in the major exporting countries.

Liquid fuels also reduced their prices as compared to the average for the Union. Liquid fuels prices have dropped almost in every EU member state, except for those with higher excise stakes[8].

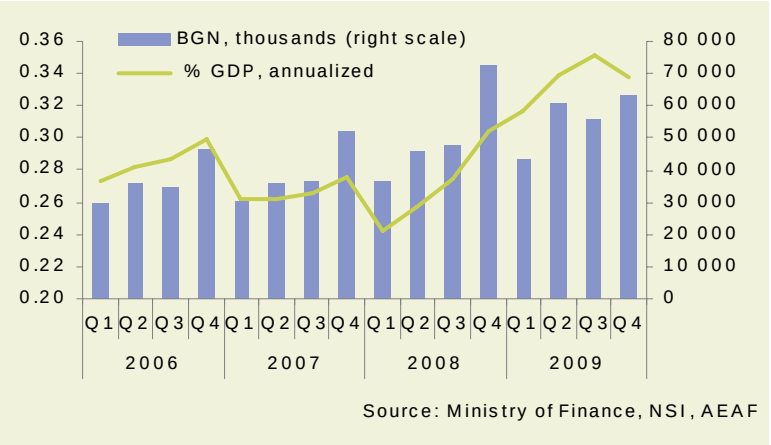
Long-term Competitiveness Drivers

Innovation[9] and Human Capital

Innovation is a key driver of productivity in the long-term and therefore affects the potential of a country to enhance its competitiveness significantly. Against the backdrop of a global economic turmoil, Bulgarian business and government are forced to cut largely their expenditures on R&D.

Innovation activities in the country are dominated by public funding and there is a clear trend of decreasing R&D spending throughout last year, visible from the budget outlays on Science.

Fig. 25: Budget Outlays on Science



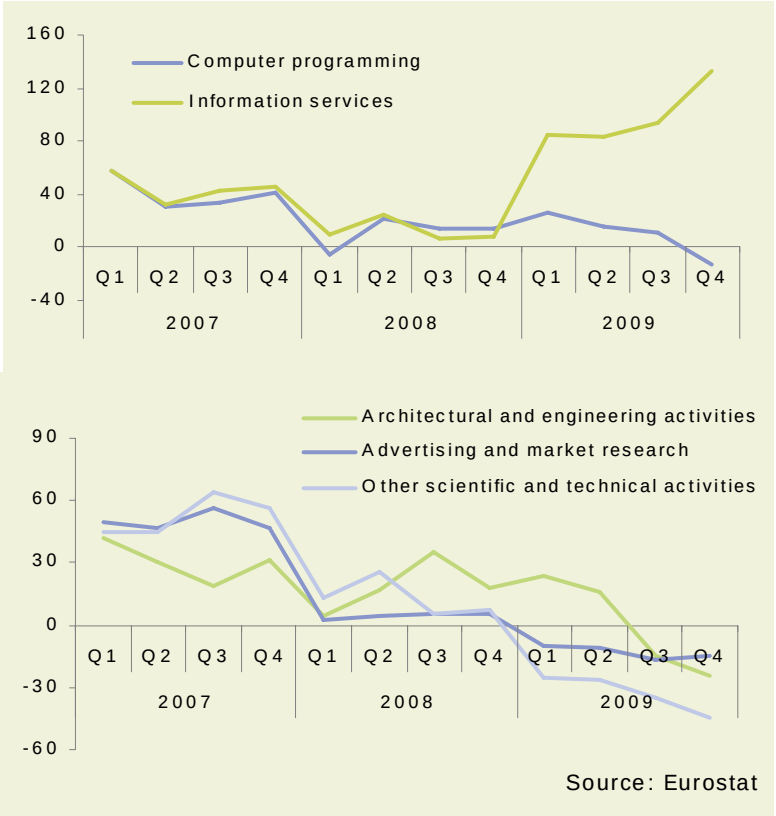
Quarterly data for 2009 indicate that turnover in professional, scientific and technical activities[10] tumbled in Bulgaria after registering over twofold y/y increases in 2007 and a decent performance in 2008. A decline in the corresponding indicator is also observed for EU27 on average, but both the pre-crisis expansion and the subsequent decrease are less pronounced. A more detailed breakdown by some innovation-related activities also shows negative annual growth rates in the second half of 2009. The only exception is in information services, whose rate of increase is even picking up.

[8] Lithuania, Latvia, Romania, the UK.

[9] In accordance with the EU Community Innovation Surveys, an innovation is defined as a new or significantly improved product (good or service) introduced to the market or the introduction within an enterprise of a new or significantly improved process. (cf.ref. http://epp.eurostat.ec.europa.eu/ statistics_explained/index.php/Innovation).

[10] This item of the NACE rev.2 is only a proxy for innovation, as it includes activities like Scientific research and development, Advertising and market research, Activities of head offices; management consultancy activities, Architectural and engineering activities; technical testing and analysis. However there are also some positions like Legal and accounting activities and Veterinary activities that could not be excluded due to lack of detailed information.

Fig. 26:
Turnover in Some Innovation Related Activities (%, y-o-y)

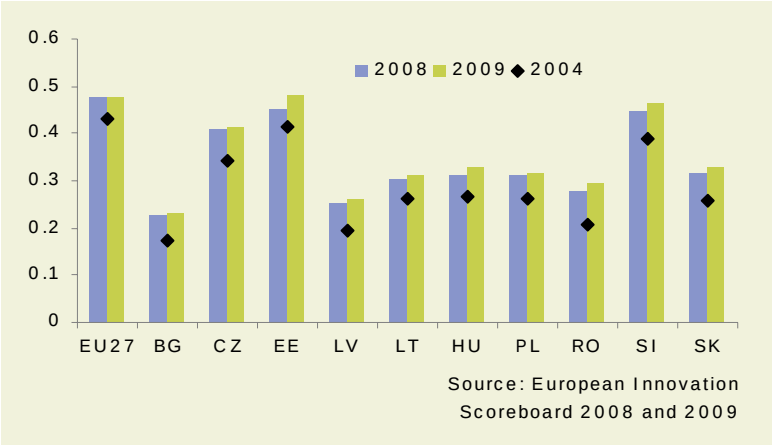


Source: Eurostat

On the flipside, there is survey evidence that some companies in the country have pursued strategies of intensification of their R&D activity to remain competitive. The ARC Fund survey of innovation activity of Bulgarian business reports a considerable increase of innovation activity in 2009. The share of companies, which declared they had innovation activity, increased to 71% in 2009 compared to 43% in 2008.

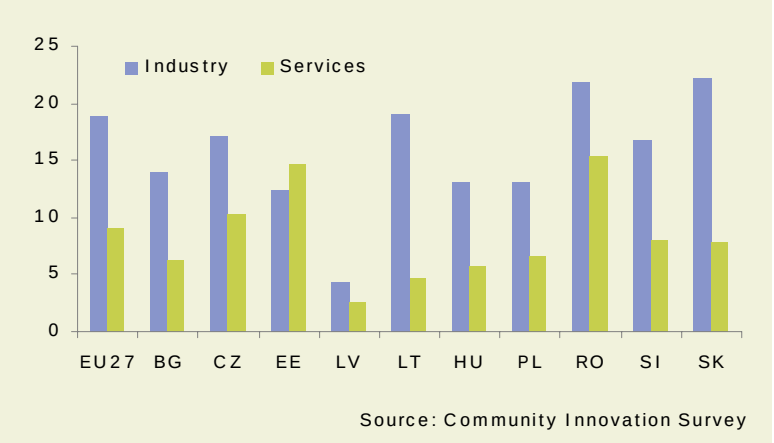
The recently published European Innovation Scoreboard for 2009 also indicates a positive change in Bulgaria's summary innovation index, but the index relies largely on data up to 2008 and therefore does not capture the most recent changes in innovation performance that are due to the effect of the global crisis. Generally, Bulgaria falls in the group of the catching-up countries, whose level of innovation is much lower than the EU27 average but which are rapidly closing the gap. Although starting from a low base Bulgaria is among the fastest growing countries together with Romania almost across the board of indicators.

Fig. 27:
Summary Innovation Indicator



The Community Innovation Survey indicates that in Bulgaria, as well as in the EU27, there is a significant gap between industry and services in terms of turnover from innovation.[11] Relatively high share of enterprises whose innovations have high effects on reducing materials and energy per unit output as a percent of innovative enterprises is also considered as an indication of the positive impact of innovation on efficiency.

Fig. 28:
Percent of Turnover Attributed to Innovation



Labour skills are closely linked to innovation. With a more skilled managerial and general workforce, firms are better able to create and implement a new technology and organizational change. Skills can be developed through education and also training throughout an individual's working life.

Educational attainment of population aged 25-64 ranks Bulgaria quite favourably toward the EU 27, although behind most of the NMS. Over the last years the share of population at active working age, having completed at least upper secondary education has gradually increased to 77.9% in 2009, while the percentage of primary and lower-secondary educated has decreased. That was accompanied by an increase in the enrolment rates in upper-secondary and tertiary education, whereas a clear downward trend in the lower educational stages, especially in primary education has been on the road.

[11] This indicator is defined as the ratio of turnover from products new to the enterprise and new to the market as a percent of total turnover.

The ongoing demographic trends, as well as the dropout rates, generally raising social and economic costs, have made pressure on the labour supply structure. The robust jobcreation in the period of 2002 to 2008, primarily concentrated in more labour-intensive and low knowledge-intensive sectors, went hand in hand with shortages of labour, especially of high-skilled workers, which started fading out since end 2008 - beginning of 2009. The employment growth stopped and turned negative throughout 2009, as the workforce dismissals have been mostly pronounced in the labour-intensive sectors, thereby covering predominantly workers with primary and lower, and upper-secondary education. Having in mind the latter have been the backbone of the labour force, it could be considered they would quickly find new jobs when labour demand revives.

Participation in life-long learning activities is needed for better matching the supply and demand of labour. The percentage of participants however remains rather low, ranking Bulgaria at the bottom of all EU countries, implying a necessity for further efforts in attracting and motivating people to participate in all forms of learning throughout the active working life.

Fig. 29:
Population aged 25-64 with at least upper-secondary education, % of total

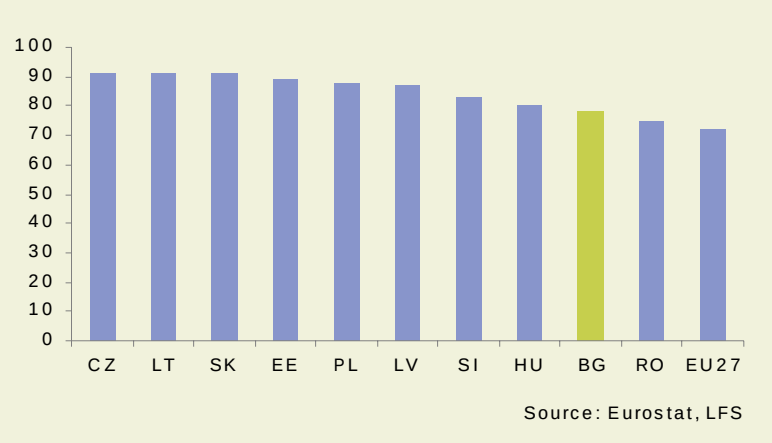


Fig. 30:
Life-long learning (people participating in any learning activities as a % of all respondents)

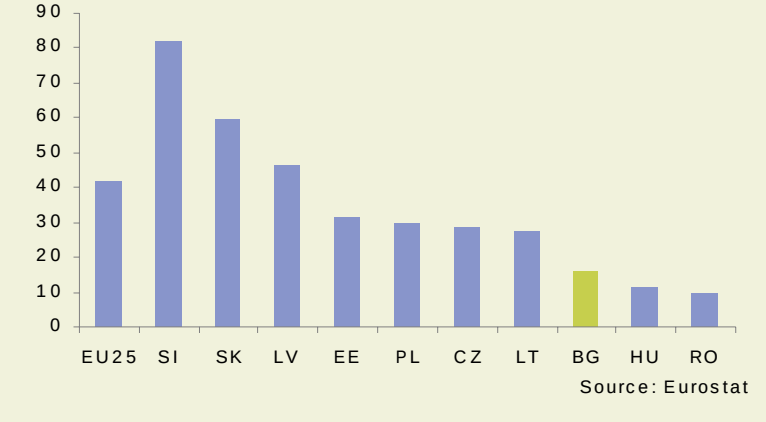


Fig. 31:
Employment distribution by educational attainment (25-64), %

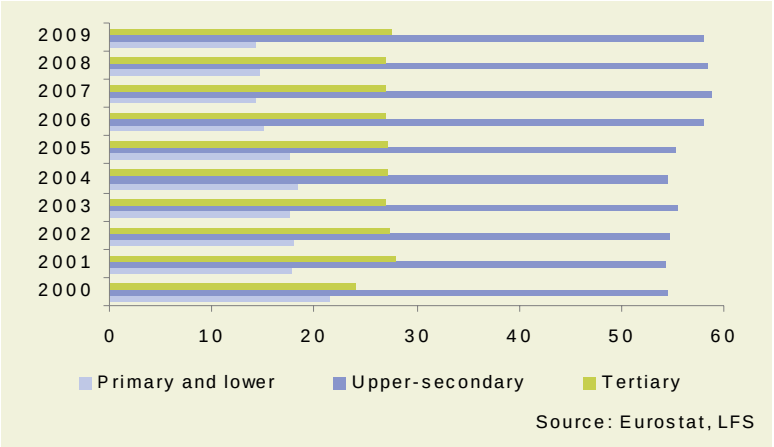
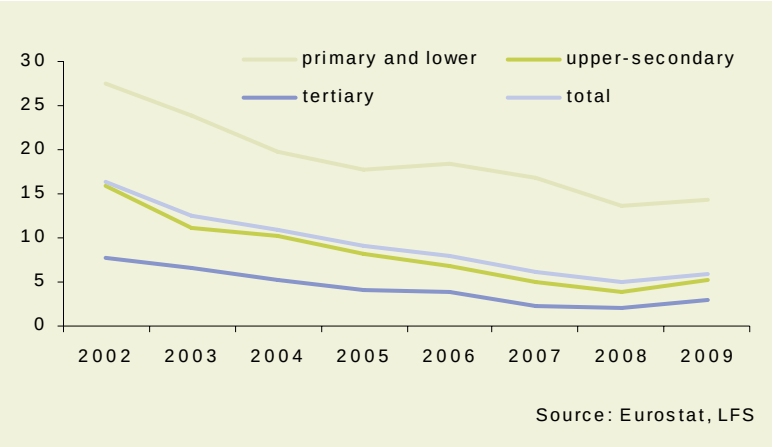


Fig. 32:
Unemployment rates by educational attainment (25-64), %



Investment

Investment is an essential condition for achieving higher competitiveness of any economy. By increasing the amount of machinery and equipment available to each worker, and by bringing new technology to the production process, investment in physical capital enhances labour productivity and growth. Low capital base in Bulgaria and high value added of the investments both in terms of technological improvements and production efficiency determined high growth rates of investment since 1998. Large capital inflows in Bulgaria were favoured by macroeconomic stability and large profit margins and boosted further investment activity in the country. As a result the share of gross capital formation grew excessively, nearing 40% of GDP, which can hardly be considered a sustainable level.

In 2009 a reversal of the upward trend is observed in line with the unfavourable external environment and the fact that investment is highly volatile throughout the business cycle. Both private and public capital expenditures declined in an attempt to reduce expenditures. Negative expectations, high risk and restricted liquidity all contributed to the 27% decline in gross fixed capital formation in 2009.

Fig. 33:
Change in Investment on Annual Basis

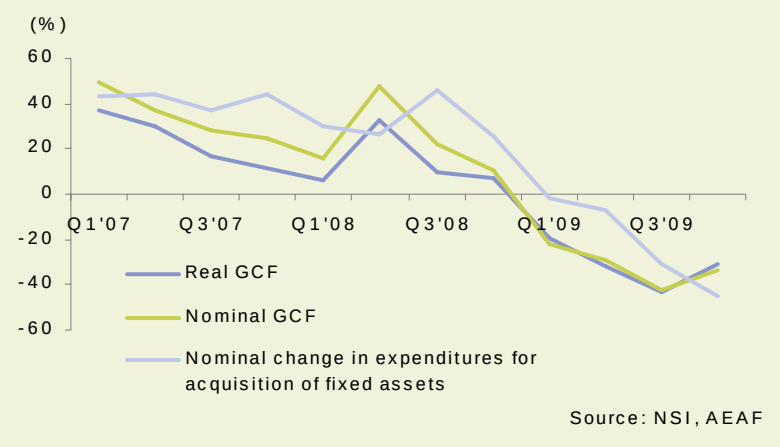
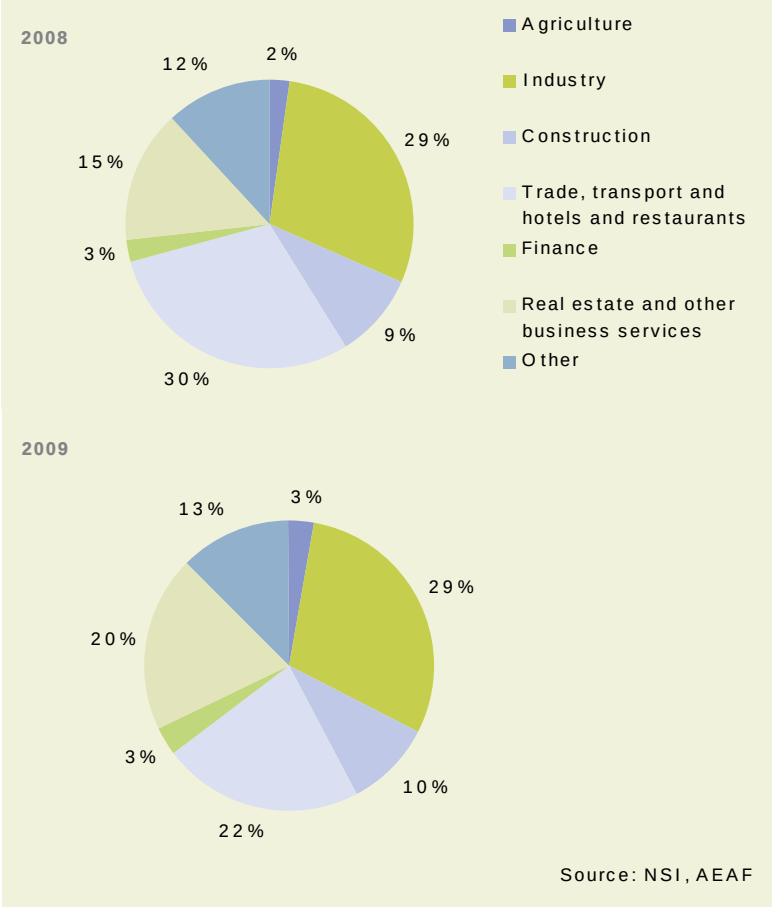


Fig. 34:
Structure of the expenditures for acquisition of tangible assets by economic sectors



The bulk of investment in fixed assets in the last six years has gone to industry, construction and real estate, trade and transport, but the attractiveness of the latter two sectors is fading away. Trade share in total investment is maintained in 2009 despite dwindled consumption demand only due to several big projects in the pipeline. Construction and real estate share is are still increasing.

Net foreign direct investment (FDI) declined dramatically in the last two years – it amounted to 30% of GDP in 2007 and decreased to 18% in 2008 and further down to 10% in 2009. As expected, the bulk of FDI inflows in Bulgaria come from countries in the EU – Netherlands, Austria, Germany.

Foreign Direct Investment

Fig. 35:
Annual change in expenditures on acquisition of fixed assets and net FDIs

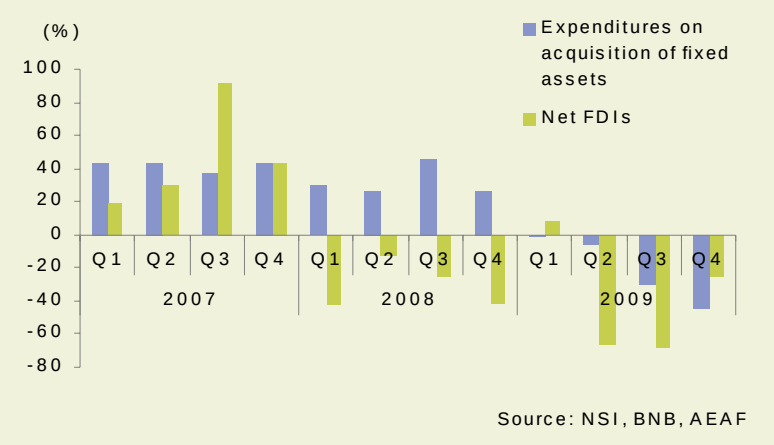
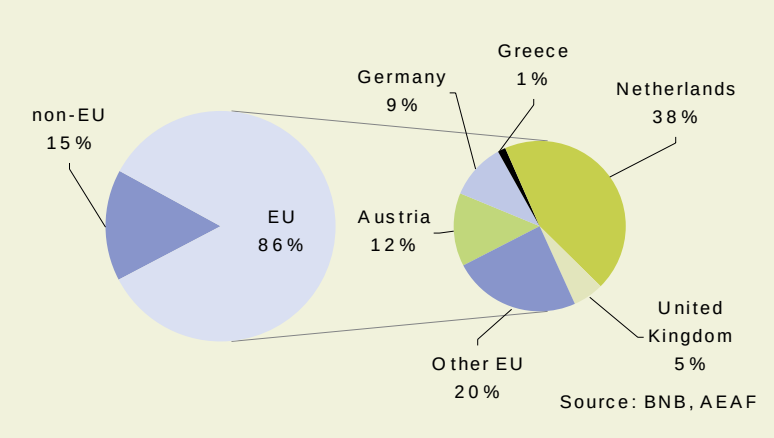
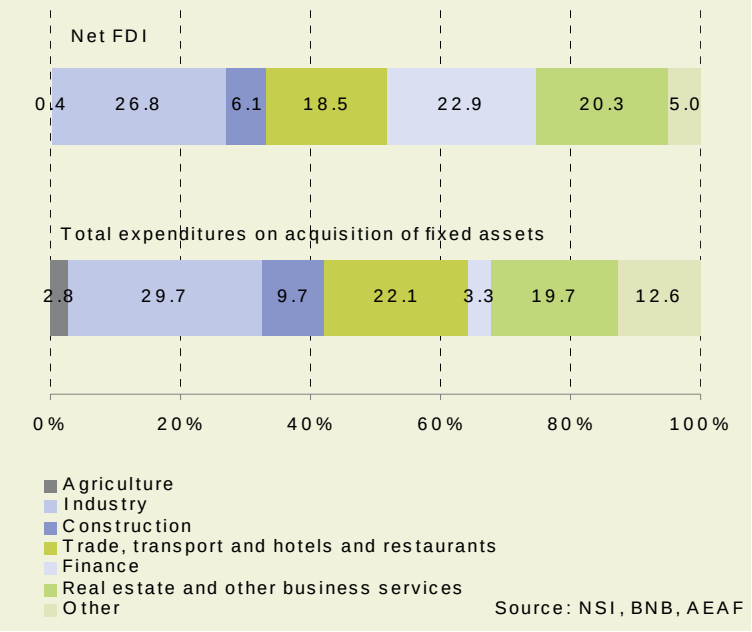


Fig. 36:
FDI inflows in Bulgaria by country of origin



A comparison between net inflows of FDI and expenditures on acquisition of fixed assets shows that the upward trend in FDI broke much earlier – when the crisis in Bulgaria's largest investors outburst – compared to investment in fixed assets in Bulgaria: the latter has been posting negative growth rates since the beginning of 2009, while the decline in net FDI started year ago. Moreover, as it can be inferred from the figure below, there seems to be a disproportionally big interest of foreign investors in speculative investments in real estate. Accordingly, foreign direct investments are more volatile.

Fig. 37:
Comparison of structure of net FDIs and investment in fixed assets by economic sectors



A break-down of investment by asset types reveals a higher share of investment in machinery and transport equipment in Bulgaria as compared to the EU-27 average. This is achieved at the expense of lower investment in infrastructure. Even compared to the NMS Bulgaria is ranked among the 3 worst performing economies in terms of infrastructure quality, thus increasing business costs for the companies operating in the country and ultimately lowering productivity. Government capital expenditures, which are predominantly infrastructure-related, have accounted for a larger share of GDP in the past few years, as compared to Bulgaria's peers, but the efficiency of the funds invested remains questionable. The absorption of EU funds is another source of funding, whose potential has been insufficiently used.

Investment in physical infrastructure

Fig. 38:
General government gross capital formation (% GDP)

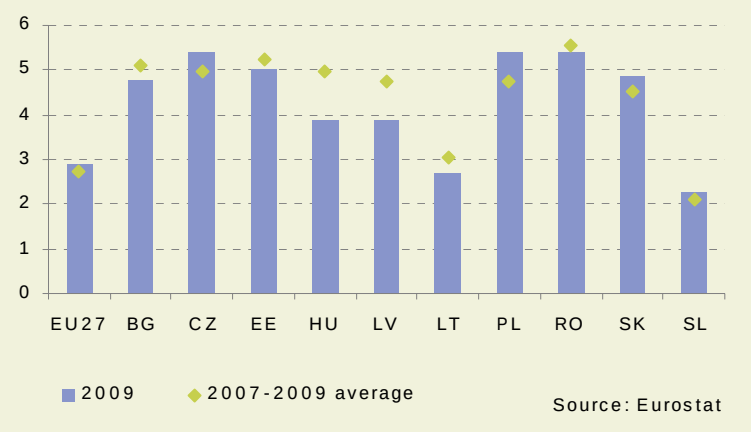
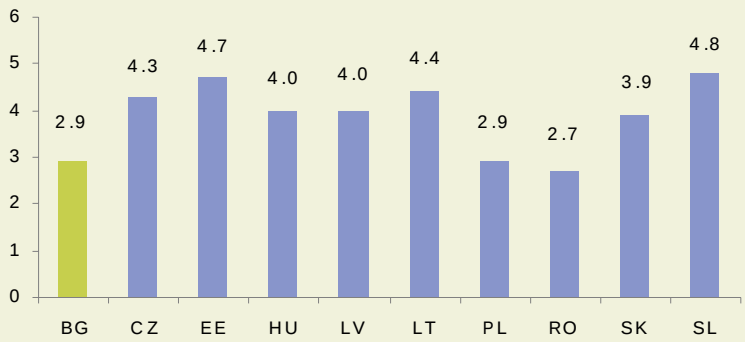


Fig. 39:
Infrastructure Index Score (1 to 7 with 7 being the best rate)



Source: Global Competitiveness Report 2009-2010