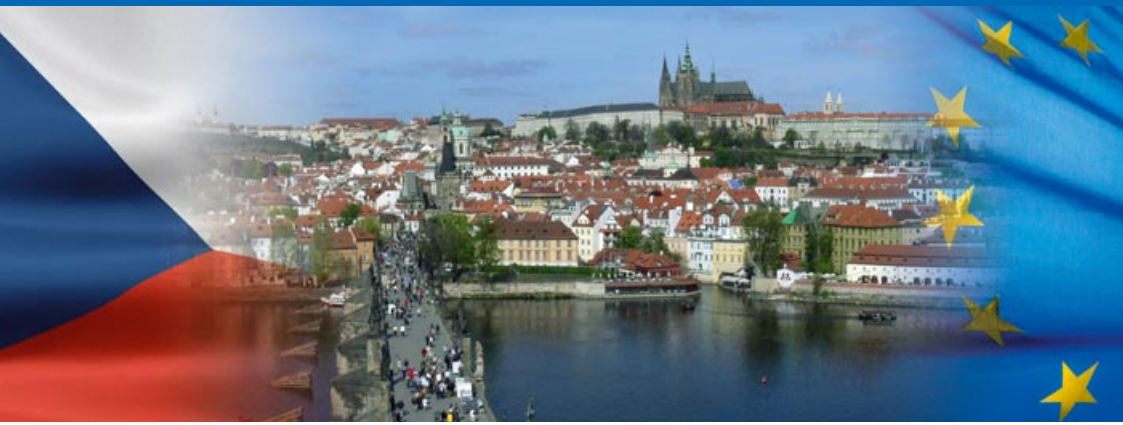
CZECH REPUBLIC 2008



Strong Currency, No Rush Toward the Euro

An Economic Survey
Produced by

CERGE-EI

Center for Economic Research and Graduate Education of Charles University
& Economics Institute of the Academy of Sciences of the Czech Republic

About CERGE-EI

CERGE-EI is an economics department jointly established by Charles University in Prague and the Academy of Sciences of the Czech Republic. It provides an American-style Ph.D. program in economics and conducts state-of-the-art research in theoretical and policy-related economics, with a particular emphasis on the transition to free markets and European integration. The Ph.D. degree from CERGE-EI is fully recognized both in the Czech Republic and in the United States.

CERGE-EI's mission started in 1991 with a goal to educate a new generation of economists from postcommunist countries. Our graduates are already filling posts in the IMF, World Bank, EBRD, OECD, regional central banks and ministries, universities, and private financial institutions. CERGE-EI plays a major role in preventing brain drain by keeping promising students in the region and attracting scholars who have been trained in the West. Over 70% of graduates remain in the region or deal with the region in international organizations, which contrasts sharply with the 5% of Central and Eastern Europeans who return after receiving a Ph.D. in the USA. About one third of the students are from the Czech Republic, the rest comes from essentially all postcommunist countries. All courses are taught in English.

CERGE-EI maintains high academic standards by employing professors and researchers trained at top American and Western European universities. Current faculty members come from the Czech Republic, Russia, South Korea, Germany, USA, Turkey, Croatia, and Slovakia. They regularly publish in international journals and present at conferences around the world. CERGE-EI also runs the largest economics library in the region.

CERGE-EI is institutionalized as a joint workplace of two separate entities: Center for Economic Research and Graduate Education of Charles University in Prague and the Economics Institute of the Academy of Sciences of the Czech Republic. The co-operation agreement between these two entities enables the efficient pooling of human, technical and financial resources of both institutions. Both the Academy and the University play an invaluable role in making CERGE-EI's unique academic and research program possible.

CERGE-EI is financed by the Czech government, grants from international institutions, and private donations. Contributions from foundations and corporate donors have been essential in attracting international faculty and students. A substantial increase in CERGE-EI's endowment is required in order to extend its service to the least developed parts of the former communist bloc and to enhance CERGE-EI's high academic standards, its international character, and its position as the leading center of research and education in economics in Central and Eastern Europe.

Said about CERGE-EI:

"I was impressed by the quality of the program at CERGE-EI when I visited there. It is a leader in economic education and research in the region."
Gary Becker, Professor, University of Chicago, and 1992 Nobel Laureate in Economics

"The peace and prosperity of the post-communist world requires investment in economic education and understanding. CERGE-EI is making a critical contribution to filling the void left by decades of hiding the truth."
Václav Havel, ex-President of the Czech Republic

P.O. Box 882, Politických vězňů 7, 111 21 Prague 1, Czech Republic,
tel.: (420) 224 005 123, fax: (420) 224 211 374, e-mail: office@cerge-ei.cz, internet: http://www.cerge-ei.cz

THE ACADEMY OF SCIENCES OF THE CZECH REPUBLIC

CERGE-EI

CZECH REPUBLIC 2008

Strong Currency, No Rush Toward the Euro

Charles University in Prague
Center for Economic Research and Graduate Education

Economics Institute
Academy of Sciences of the Czech Republic

Prague
December 2008

Editors:
Alena Bičáková and Peter Katuščák

Authors:
Ilkin Aliyev (III)
Jan Babecký (VIII)
Alena Bičáková (IV)
František Brázdik (III)
Petra Brhlíkova (VI)
Georgi Burlakov (VII)
Marián Dinga (I)
Vilma Dingová (VIII)
Libor Dušek (VI)
Martin Gregor (II)
Dana Hájková (VIII)
Jan Hanousek (IV, VI)
Eva Hromádková (VI)
Štěpán Jurajda (IV, V)
Peter Katuščák (I, IV, VI)
Michal Kejak (III)
Evžen Kočenda (IV)
Luboš Komárek (VIII)
Zlatuše Komárková (VIII)
Tomáš Konečný (IV)
František Kopřiva (IV)
Jana Krajčová (VI)
Ali M. Kutan (IV)
Lubomír Lízal (I, IV)
Nargiza Maksudova (IV)
Daniel Münich (V)
Peter Ondko (IV)
Filip Palda (VI)
Filip Pertold (V, VIII)
Zuzana Prelcová (IV)
Branislav Saxa (III)
Vilém Semerák (III, VI)
Anastasiya Shamshur (IV)
Natalia Shestakova (VII)
Katarína Svítková (VI)
Petr Zemčík (III,VII)
Alena Zemplinerová (III)

Editorial assistant:
Robert Menkyna
Alexandra Prokosheva
Silan Teymurtas

ISBN 978-80-7343-176-1 (Univerzita Karlova, Centrum pro ekonomický výzkum a doktorské studium)
ISBN 978-80-7344-165-4 (Národohospodářský ústav AV ČR, v. v. i.)

CONTENTS

I. GENERAL INFORMATION

I.1 The Czech Republic: A Recent Economic Summary

Despite the political turbulences following the 2006 election and deepening structural deficit of public finances, in 2007 the Czech economy performed outstandingly, with GDP growth reaching 6.6%. The 2007 growth rate exceeded the growth rate in any of the EU15 countries, continuing the process of convergence. On the other hand, it lagged behind Slovakia (10.4%), the regional growth leader, as well as the Baltic countries, although the latter ones were showing signs of overheating.

Looking beyond the GDP growth rate gives a more mixed overall impression. The consumer price inflation rate reached 7.5% in January 2008, although the peak was due to a one-time increase in the value-added tax and commodity price run-ups that are likely to fade away toward the end of 2008. In reaction to this, the Czech National Bank (CNB) increased the two-week repo rate from 2.5% in May 2007 to 3.75% in February 2008 in a series of five quarter-point steps. The interest rate hikes would have probably been more dramatic if it had not been for the appreciation of the currency, which helped to slow down the inflation. For example, unlike in the U.S., where the real price of gasoline more than tripled between 2000 and the summer of 2008, the appreciating crown and the falling dollar kept the real price of the most common Natural 95 gasoline still below the 2000 price (32 CZK per liter in early 2008 vs. 35 CZK per liter in 2000, measured in 2008 prices). Even with the interest rate increases, though, the 3-month interbank rate remained the lowest in the EU, suggesting that the monetary policy was still fairly loose. For comparison, the key ECB interest rate was increased to 4.25% in July 2008 as the Euro area inflation rate hit 4%, less than two thirds of the Czech inflation rate.

On the labor market front, the Czech Republic witnessed a continued decrease in unemployment rate from 9.5% in December 2004 to 5.0% in June 2008, making the labor market very tight. The observed rigidities in the labor market and a potential mismatch between the demand and supply of skills and the high rate of inflation increased the pressure on wage growth and potentially also on a build-up of inflationary expectations.

The attractiveness of the Czech currency led to a fast appreciation of the crown, peaking at CZK 22.97 to the Euro on July 21, 2008. This made the Czech crown the fastest appreciating currency in the world between July 2007 and July 2008 (*see Section III.3 for further details*). The falling dollar and the nervousness of the markets made the stable and appreciating Czech crown a safe harbor. Yet the speed of appreciation created real worries. The CNB report on financial stability noted that further appreciation could have resulted in more than doubling of the enterprise default rate of 3% over the following year. In response to a steep 9% appreciation against the Euro between the end of May and mid July 2008, the CNB attempted to

stop appreciation first by verbal statements, and second by a quarter of a percentage point cut in the interest rate at the beginning of August.

All these developments came to an abrupt end and a shift into reverse in the fall of 2008 when the fallout from the U.S. subprime lending crisis hit the international financial markets with full force. This crisis has brought up unprecedented uncertainties in the world economy reflected in extreme volatility in financial markets. The Czech GDP growth rate is expected to slow down, with the most recent CERGE-EI macroeconomic model forecast putting the number at 4.6% (*see http://www.cerge-ei.cz/forecast/*). The CNB has cut the interest rate by 0.75 of a percentage point to 2.75% in November. The inflation rate has come down to 4.4% at the beginning of December and the crown is back between 25 CZK and 26 CZK to the Euro. Yet the situation in the Czech Republic seems to be much better compared to the U.S. or EU15. Above all, the Czech banks had virtually no toxic assets in their balance sheets when the crisis broke out, with exposure below 1% of assets. In addition, the banks followed traditional, conservative course of business. Unlike in other countries, the ratio of deposits to loans was well above 130% in 2007 and remains relatively high (in comparison, it is below 80% in Hungary or around 90% on average in the EU). Also, unlike Hungarian consumers, who took out loans in Euros or Swiss Francs, the Czechs had long term confidence in their currency and virtually all loans are denominated in CZK. The Czech National Bank has also started to cut interest rates before the European Central Bank did. As a result, the financial crisis has not directly affected the Czech economy through large-scale deleveraging, but rather the transmission happens through weakened exports and psychology.

As time goes on, the world economy and the Eurozone prospects are becoming gloomier. Since exports have recently been an important engine of the Czech GDP and Germany alone is the destination of one third of Czech exports, the external demand shock will inevitably further slow down the Czech economy. As there is not much consensus about the size of the demand shock, there is even less certainty about the transmission effect. On the other hand, there are several positive factors suggesting that although the slowdown will be significant, a reduction in GDP is unlikely. First, the Czech economy is relatively flexible, and the steady real appreciation of the currency has already forced the producing sector to become more innovative and competitive. The large concentration of export production in the car industry remains a worry, though. Second, the fiscal situation has been consolidated over the last two years, with the 2007 consolidated public budget deficit of 1.6% of GDP, compared to 2.7% in 2006 and 3.6% in 2005. Given that the date of entry into the Eurozone has not been set yet and is expected in 2012 at the earliest, this gives the government a bit of a fiscal maneuvering space should the slowdown turn steeper than expected. In sum, we believe that even in the most pessimistic scenario, we should observe a small positive growth in 2009.

I.2 History and Geography

The first signs of people living in the area of the present Czech Republic are from 1.6–1.7 million years ago and were found near Beroun in Central Bohemia. The first Slavic people came to the region in the 5th and 6th centuries. The first written references to the Czechs, Prague, and regions of Bohemia appeared in the 8th and 9th centuries. In about the year 870, the Czech prince Bořivoj was mentioned for the first time in writing. He came from Prague and belonged to the house of Přemysl, which later became the royal dynasty of Bohemia. This dynasty governed the Czech kingdom until 1306. During the reign of the House of Luxembourg (1310–1436), Bohemia was the center of the Holy West Roman Empire of German People, and Prague became one of the cultural centers of Europe. A short period of elected kings ended in 1526 when the Czech kingdom (Bohemia, Moravia, and Silesia) became a part of Austria, and later the Austro-Hungarian monarchy, where it remained until the 20th century.

In 1918, after World War I, Czechoslovakia emerged from the ruins of the Austro-Hungarian monarchy as a modern democratic state. Czechoslovakia consisted of Bohemia, Moravia-Silesia, Slovakia and Ruthenia (today a part of Ukraine). In 1939, Slovakia separated from Czechoslovakia and the Czech part of the country was occupied by the German army and incorporated as a special autonomous state into the German Empire. In 1945, Czechoslovakia was liberated by the Soviet and American armies. The Czechoslovak state was restored without Ruthenia, which joined the Soviet Union.

In February 1948, the Communist Party gained power and Czechoslovakia was under the Soviet sphere of influence until 1989. After the "Velvet Revolution" in 1989, a democratic regime was restored.

In response to a Slovak desire for greater self-determination, a federal constitution was introduced in 1968. Completely controlled by the Communist party, however, the Czechoslovak Federation had not satisfied the legitimate aspirations of the Slovak people. From 1990 on, Czech and Slovak political leaders negotiated the future form of the federation. After two years of unsuccessful negotiations and following the 1992 Parliament elections, the country was peacefully divided into the Czech Republic and the Slovak Republic on January 1, 1993. In 1999, the Czech Republic joined NATO; it became an EU member in May 2004.

In terms of its area (76,867 square kilometers), the Czech Republic ranks among the smaller European countries. The Czech Republic shares borders with Germany, Austria, Slovakia and Poland.

Historical milestones of the Czech Lands in the 20th Century

1918 After the collapse of the Austro-Hungarian monarchy, the First Czechoslovak Republic is established as a joint state of Czechs and Slovaks.

1920 A democratic constitution is adopted.

1938 As a result of the Munich Agreement and the consequent Vienna Award, parts of Czechoslovakia are occupied by Germany and Hungary; the second Republic, Czecho-Slovakia, is established with extended Slovak autonomy.

1939 The rest of the Czech territory is occupied by Germany and an independent Slovak state is established.

1945 The Czech lands are liberated and the Czechoslovak Republic is restored.

1948 Communists take over the country, marking the beginning of a 40-year totalitarian regime.

1968 A reformist movement in the Communist Party results in the Prague Spring (easing of the totalitarian course). The reforms are reversed by the invasion of Warsaw Pact armies in August and the subsequent process of normalization. A new federal constitution is adopted.

1989 The Velvet Revolution ends the totalitarian regime.

1990 The first democratic parliamentary election in 42 years is held.

1991 The last Soviet military troops leave the country.

1992 Czechoslovakia is divided, and the Czech and Slovak Republics are established on January 1, 1993.

1999 On March 12, the Czech Republic joins NATO.

2004 In May 2004, the Czech Republic joins the EU.

I.3 Demography

Birth Rate

In 2007, the demographic dynamics of the Czech population continued to display a positive trend. Moreover, a natural population increase of almost 10,000 was the highest in 25 years, the main contributing factor being an increase in live births *(see Table I.3.1)*. There were 114,632 live births in 2007, topping the 2006 figure by almost 9,000. This is the highest figure since 1993, the year when a rapid decrease in live births began.

The birth rate growth corresponds to a recent fertility increase to 1.44 live births per woman during her reproductive age. An alternative fertility measure (accounting for current mortality) is the net reproduction rate, which measures the number of daughters a woman would have during her reproductive lifetime according to prevailing age-specific fertility and mortality rates in the given year. The population is exactly reproducing itself if the net reproduction rate is equal to one. The net reproduction rate in the Czech Republic in 2007 was 0.7, which indicates that, despite a temporary increase in live births, the fertility rate remains at a critically low level and is not sufficient for maintaining the population level. Moreover, the average age of a woman giving birth increased to 29.1 years of age *(see Table I.3.2)*.

Overall, the positive demographic dynamics is driven predominantly by a favourable population structure (the generation of strong population cohorts born during the 1970s baby boom are entering their thirties and are starting to set up families and have children) combined with rapid growth in the mortgage market and an increase in the supply of hous-

Table I.3.1 Vital Statistics in the Czech Republic

	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007
Population (mil.)*	10,363	10,331	10,273	10,224	10,201	10,202	10,207	10,234	10,267	10,323
Live births	130,564	96,097	90,910	90,715	92,786	93,685	97,664	102,211	105,831	114,632
Deaths	129,166	117,913	109,001	107,755	108,243	111,288	107,177	107,938	104,441	104,636
Natural increase	1,398	-21,816	-18,091	-17,040	-15,457	-17,603	-9,513	-5,727	1,390	9,996

* Mid-year

Source: Czech Statistical Office

Table I.3.2 Fertility Rate and Average Age of a Woman Giving Birth

	1995	2000	2001	2002	2003	2004	2005	2006	2007
Total fertility rate [a]	1.28	1.14	1.15	1.17	1.18	1.23	1.28	1.33	1.44
Average age of a woman giving birth	25.8	27.2	27.5	27.8	28.1	28.3	28.6	28.9	29.1
Average age of a woman giving first birth	23.3	24.9	25.3	25.6	25.9	26.3	26.6	26.9	27.1
Net reproduction rate [b]	0.61	0.55	0.55	0.56	0.57	0.59	0.62	0.64	0.70

Notes:

[a] The overall fertility of an 'imaginary' woman who behaves during her reproductive life according to current age-specific fertility rates for ages 15–49.

[b] The expected number of daughters per new-born prospective mother if she passed through her lifetime conforming to the age-specific fertility and mortality rates of a given year (approximately a half of the total fertility rate adjusted for the premature death of some women).

Source: Czech Statistical Office

ing for young families. However, the increased availability of housing and the positive trend in live births are not matched by an increase in the the availability of facilities for children of pre-school age, which were massively reduced during the 1990s' fertility drop. Consequently, placing a child of pre-school age into a kindergarten constitutes an ever more difficult problem and measures aimed at improving the current inconsolable situation in the availability of day-care centres belong to the main policy challenges of the current government *(see the feature article)*.

Legislative Changes in Child Day-Care

Before 2008, legislation regarding the day-care of children below three years of age was quite rigid. It allowed only nurses with specialized pediatric education to take care of infant children on a daily basis. Given the notorious lack of state-provided nurseries for children below three years of age (their number decreased by 94% during the last 16 years) and an increasing willingness of mothers (or fathers on parental leave) to work before their child reaches three years of age, this legislation significantly contributed to the current shortage of nursery places and other baby-sitting options and, in the end, prevented mothers (or fathers) from returning to work. In order to improve the situation, the Ministry of Labor and Social Affairs led by Petr Nečas (ODS) drafted an amendment to the law (which was eventually passed by Parliament in February 2008) that would liberalize the strict conditions imposed on baby-sitters. Besides persons with a nursing degree, the new law also allows sanitary, rescue and various other social workers to do the job. The Ministry also proposed another amendment aimed at decreasing the age limit under which infants require professional care, hence widening the possibilities of parents when searching for an appropriate nurse and, consequently, reducing the grey economy in nursing. However, this proposal has not yet been approved by Parliament. This agenda, together with supporting micro-nurseries (one mother is entrusted to take care of other children besides her own) or firm nurseries (employer-operated establishments aimed at providing day-care for the children of the firm's employees) by tax reliefs and other measures remain the focus of the Ministry for the second half of the electoral term.

Age Structure of the Population

Despite the increase in the birth rate, the Czech demographic outlook is not optimistic. Although the total population shrinkage from 1994–2002 seems to be over, the share of people above the age of 65 continues to follow an increasing trend *(see Table I.3.3)*. This is an outcome of a low birth rate combined with population aging due to steadily increasing life expectancy. As a consequence, the average age of a Czech inhabitant is 41.8 years, higher than ever before. On the same note, the population share of people aged 65 and above is also at a historic high, reaching

Table I.3.3 Age Structure of the Population

	2000	2001	2002	2003	2004	2005	2006	2007
0–14	16.2	15.9	15.6	15.2	14.9	14.6	14.4	14.2
15–24	15.0	14.6	14.1	13.8	13.4	13.2	13.1	13.0
25–49	36.3	36.4	36.5	36.7	36.9	36.9	36.9	37.0
50–64	18.7	19.3	19.9	20.4	20.8	21.0	21.2	21.2
65+	13.9	13.8	13.9	13.9	14.0	14.2	14.4	14.6
Average Age	38.8	39.0	39.1	39.3	39.5	39.8	40.0	41.8
Index of Aging [a]	85.5	87.0	89.0	92.0	94.0	97.0	100.0	102.0
Old dependency ratio [b]	19.9	19.6	19.7	19.6	19.7	20.0	20.2	20.5
Life expectancy (male)	71.7	72.1	72.1	72.0	72.6	72.9	73.4	73.7
Life expectancy (female)	78.4	78.4	78.5	78.5	79.0	79.1	79.7	79.9

Notes:
[a] Number of people over 65 per 100 children aged 0–14.
[b] Ratio of population 65+ over people 15–64.
Source: Czech Statistical Office

14.6% at the end of 2007. Thus the share of people aged 65 and above is higher than the fraction of children below the age of 15, creating a reverse age pyramid, a picture to be seen for many years to come. The present population share of children aged 0–14 is 14.2% of the total population, which is 8 percentage points smaller than in 1975 and 4 percentage points smaller than in 1995. Given the demographic structure, it is inevitable that the trend of population aging will continue in the future. Projections of the Czech Statistical Office indicate an increase in the population share of people aged 65 and above to up to 20% by 2020 and up to 30% by 2050. Another indicator of population aging, the old-dependency ratio (the ratio of people aged 65 and above over the working-age population) now exceeds 20% and is bound to exceed 30% during the next decade. This aspect of demographic development calls for a substantial reform of the Czech social security system, since it will inevitably become unsustainable in the future in its current form.

Migration

Besides the highest natural population increase in 25 years, a big boost for the overall population growth in 2007 came from migration. The size of the immigration flow has reached an unprecedented level as more than 100,000 foreigners registered for residency in the Czech Republic during 2007, which is 36,000 more than the year before. On the contrary, the number of emigrants decreased to 20,500 (the lowest number since 2000, though the emigration outflow may be severely underestimated since many Czechs do not report when they move abroad and remain included in the population count). This amounts to a positive net migration of almost 84,000 people in 2007 (virtually totaling the sum over the previous three years), resulting in a total population increase of 94,000 people. The last time such growth was recorded was at the beginning of the 1950s during the post-war baby boom. Including immigration, the total population growth has remained positive for five consecutive years and the total population of the

Table I.3.4 Migration

	1995	2000	2001	2002	2003	2004	2005	2006	2007
Immigration	10,540	7,802	12,918	44,679	60,015	53,453	60,294	68,183	104,445
Emigration	541	1,263	21,469	32,389	34,226	34,818	24,065	33,463	20,500
Net migration	9,999	6,539	-8,551	12,290	25,789	18,635	36,229	34,720	83,945
Natural increase	-21,816	-18,091	-17,040	-15,457	-17,603	-9,513	-5,727	1,390	9,996
Total population increase	-11,817	-11,552	-25,591	-3,167	8,186	9,122	30,502	36,110	93,941

Source: Czech Statistical Office

Czech Republic at the end of 2007 was 10,323,000.

The structure of immigrants according to citizenship is similar to previous years. The highest fraction of net migration is generated by Ukraine (36.8%), followed by Slovakia (15.6%) and Vietnam (13.4%). The Russian Federation (6.9%), Mongolia (3.4%) and Moldova (2.9%) are the only other countries with a notable share of net migration. The overall number of foreigners legally residing in the Czech Republic has increased to 392,087, which represents 3.8% of the total population.

Increased immigration in 2007 illustrates the path the Czech Republic could pursue if it is to reverse the negative demographic changes. Given the low fertility rate (despite the temporary increase), targeted immigration could be a key channel to prevent population shrinkage and increase the share of productive population. Supportive measures such as simplifying the administration of work permits, improving the corresponding legislature, targeting specific countries, and attracting a young skilled workforce should remain among the major policy goals for the future.

II. POLITICAL AND INSTITUTIONAL DEVELOPMENT

II.1 Constitutional System

The constitutional system of the Czech Republic consists of the Parliament and the President. The Parliament of the Czech Republic has two chambers: the Lower House (*Poslanecká sněmovna*) and the Upper House (*Senát*). The president is elected by both Houses of Parliament for five-year terms and has limited and mostly representative responsibilities. He or she appoints the Prime Minister and the members of the government, the governor of the Central Bank, ambassadors and the Chief of Staff of the military, and signs bills. He or she can return bills to the Lower House, but his or her veto can be overridden by an absolute majority of all the members of the Lower House. The current president, Václav Klaus, was re-elected for a second consecutive term on February 15, 2008 (more details below). He replaced Václav Havel, the leader of the Velvet Revolution, who served as the Czechoslovak president from 1989 till 1992 and then as the Czech president from 1993 till 2003.

The Lower House is the most important legislative body. It has the power to pass laws by a simple majority of the members present during any given session (providing the quorum is met), to cast a no-confidence vote against the government, and to override a veto of the President and of the Upper House.

According to stipulations in the constitution, the Upper House has a limited legislative role and is only authorized to act upon Lower House legislation. The Upper House has three options when faced with bills approved by the Lower House and must act within 30 days: accept by default (take no action); reject with a suspending veto; or suggest amendments (in both cases by a simple majority). In the latter two instances, the Lower House can vote either to accept or reject the Upper House action by an absolute majority of all members of the Lower House. The Upper House can also initiate legislation. If the Lower House is dissolved, the Upper House assumes its responsibilities until new elections are held.

II.2 Electoral System for the Parliament

The Lower House of Parliament has 200 members elected for four-year terms. A proportional electoral system is used for the Lower House which discriminates against small parties: to enter the Parliament, a party has to attain at least 5% of the total number of valid votes cast nationally. The country is divided into 8 voting districts and each party nominates an ordered list of candidates for the Lower House in each voting district.

In contrast, the Upper House of Parliament uses the majority system (plurality run-off) to elect its 81 members with one representative for each constituency. Upper House members are elected for six years with a periodic replacement schedule in which 27 members

are elected every two years. Each political party can nominate one candidate in each of the 81 constituencies. In addition, independent candidates can participate providing they submit a statement of support signed by at least 1,000 eligible voters from the relevant electoral constituency. A candidate is elected on the first ballot if he/she receives a simple majority of valid votes (at least 50% plus one vote). If no candidate receives a majority on the first ballot, then the two candidates who receive the most votes from the first ballot rerun on the second ballot, and the majority winner on the second ballot is elected. At the time of writing of this yearbook, the Czech Republic is getting ready for the next Upper House elections.

Current Major Political Parties

The most important political parties currently are listed below and ordered according to their positions on the traditional "left-right" ideological spectrum.

Czech and Moravian Communist Party (Komunistická strana Čech a Moravy, KSČM) – *an extreme leftist unreformed communist party; opposes Czech membership in NATO and openly advocates the return of the pre-1989 regime; successor to the former Communist Party of Czechoslovakia, which was founded in 1921; has had a stable parliamentary representation since 1989. Chair: Vojtěch Filip.*

Czech Social Democratic Party (Česká strana sociálně demokratická, ČSSD) – *a left centrist party of traditional European social-democratic orientation; supports membership of the Czech Republic in NATO and the EU; successor to the former Czechoslovak Social Democratic Party, which was founded in 1878 and forced to merge with the Communist Party in 1948; established the minority government in 1998 and a coalition government in 2002. Chair: Jiří Paroubek.*

Green Party (Strana zelených, SZ) – *a centrist party; established in 1989, but a newcomer to the Parliament in 2006 (aside from Latvia, the only Green Party in a Parliament in a post-communist country); advocates environmental tax reform, energy reform, health and social security reforms; aims at deeper European integration and stands against U.S. dominance in NATO. Chair: Martin Bursík.*

Christian and Democratic Union – Czechoslovak People's Party (Křesťanská a demokratická unie-Československá strana lidová, KDU-ČSL) – *a centrist party of Christian-democratic orientation represented in the government in periods 1990–1998 and since 2002; fiscally conservative advocate of a "social market economy;" opposes the same-sex union bill; strongly supports Czech membership in NATO and in the EU. Chair: Jiří Čunek.*

Civic Democratic Party *(Občanská demokratická strana, ODS) – a right-wing conservative party; a dominating member of government coalitions in 1992–1997 and since 2006; under the leadership of Václav Klaus in the 1990s, the driving force of economic and political transition; nowadays advocates tax reform, and healthcare reforms; strongly supports Czech membership in NATO; holds a "Euro-skeptic" attitude toward the EU. Chair: Mirek Topolánek.*

II.3 Coalition Cabinet

Given the proportional system used for the Lower House, Czech governments are traditionally either coalition or minority governments, or both. The party system features the extreme-left Communist Party which typically controls the third-highest number of seats in the House. Executive cooperation with the Communists is a political no-no among the democratic parties, so coalition building in the Czech Republic is notoriously hard. Even Social Democrats still obey their 1995 commitment not to create an executive coalition with the unreformed Communists.

Table II.3.1 Composition of the Chamber of Deputies

Election Year	2002				2006			
Party	Votes	%	Seats	%	Votes	%	Seats	%
ODS	1,166,975	24.5	58	29.0	1,892,475	35.4	81	40.5
ČSSD	1,440,279	30.2	70	35.0	1,728,827	32.3	74	37.0
KSČM	882,653	18.5	41	20.5	685,328	12.8	26	13.0
Coalition KDU-ČSL and US-DEU	680,671	14.3	31	15.5				
KDU-ČSL					386,706	7.2	13	6.5
SZ	112,929	2.4			336,487	6.3	6	3.0
Others	484,499	10.2			319,153			
Total of Valid Votes	4,768,006				5,348,976			
Eligible Voters	8,264,484				8,333,305			
Participation	4,789,145	58.0			5,372,449	64.5		
Not Valid Votes	21,139				23,473			

Source: Czech Statistical Office

Table II.3.2 Composition of the Upper House

	2000		2002		2004		2007	
Party	Seats	%	Seats	%	Seats	%	Seats	%
KSČM	3	3.7	3	3.7	2	2.5	3	3.7
ČSSD	14	17.3	9	11.1	6	7.4	13	16.0
KDU-ČSL	18	22.2	13	16.0	11	13.6	10	12.3
ODS	21	25.9	25	30.9	35	43.2	41	50.6
ODA (+US)	12	14.8	1	1.2	1	1.2	1	1.2
US-DEU			6	7.4	4	4.9	1	1.2
Independent	13	16.0	22	27.2	19	23.5	9	11.1
Others			2	2.5	3	3.7	3	3.7
Total	**81**	**100.0**	**81**	**100.0**	**81**	**100.0**	**81**	**100.0**

Source: Czech Statistical Office

The last four Lower House elections (1996, 1998, 2002, and 2006) thus have led to fragile cabinets, and produced an ongoing series of political stalemates. The latest post-electoral deadlock in 2006 lasted four months and came to an end when two ČSSD Deputies, Michal Pohanka and Miloš Melčák, defected from the Social Democrats (ČSSD) and did not attend the confidence vote. That gave the slightly reshuffled cabinet of ODS, KDU-ČSL and SZ the margin it needed to win a minimal, but still effective majority. A coalition government hanging on the support of two turnovers is nevertheless very fragile, and seriously limited in the initial attempts to pass sweeping legislative reforms.

II.4 Presidential Election

The major political event in the first half of 2008 was an indirect presidential election. According to Article 58 in the Constitution, the election consists of three separate rounds of voting in the bicameral Parliament. In the first round, voting occurs separately in both the 200-seat Chamber of Deputies and the 81-seat Senate. The winning candidate must obtain a majority of votes in each chamber of Parliament.

If there is no winner, the leading candidates from each chamber advance to the second round. Just like the first round, the winner must receive a majority of votes in each chamber, which still vote separately.

A third round of voting occurs when no winner emerges from the second round. To win this last round, a candidate must obtain a majority of votes from the combined membership of both houses of Parliament, which now vote together (the winner must receive at least 141 of the possible 281 votes).

The Czech Constitution allows 14 days between each round, but they all typically occur on the same day. If no candidate receives a majority of votes in the third round, the entire election process is repeated until a winner emerges. This indeed happened in 2008 where two three-round electoral sessions had to be held to produce a winner.

The February presidential contest took place between the incumbent Václav Klaus, and a challenger Jan Švejnar, a University of Michigan Professor of Economics, and Chair of the Executive and Supervisory Committee of CERGE-EI. Since the president is elected by both Houses of Parliament, the first step is to secure a nomination. Václav Klaus, as an honorary chairman of the ODS, won support unequivocally from all ODS deputies. The senior opposition, ČSSD, announced their nominee Jan Švejnar by the end of 2007.

Although a pro-Švejnar coalition with centrist SZ and some MPs from KDU-ČSL was broad, chances for victory were at that time dim since Švejnar was unknown to many MPs as well as to the public. After an unprecedented public campaign, the opinion polls however started to show mixed results, in favor of both Švejnar and Klaus. Two days before the election, a respected public CVVM poll agency released a report that 42% of people wanted Klaus to be the president, and the same number said they wanted Švejnar. In addition, more people were strongly opposed to Klaus than to Švejnar, although the respondents more often said they did not have a clear opinion on Švejnar than on Klaus.

The first joint session of the two Houses of Parliament (involving three votes of 281

members) on February 8–9 involved long and undignified disputes over the method of election, in particular whether to use a secret vote or a vote by acclamation. With a secret ballot being refused, the camp of the potential pro-Švejnar supporters weakened as independent senator Karel Barták from KDU-ČSL, disagreeing with this method, did not attend the vote. In addition, Lower House deputy Evžen Snítilý (ČSSD) collapsed during the Parliament session and Josef Kalbáč, a senator for KDU-ČSL, left for health reasons. In the second round, Jan Švejnar almost filled the gap to Václav Klaus (135-142), yet in the third round, Klaus was short only two votes to win (113-139).

The second session on February 15 was at last conclusive. An important part was the absence of junior ruling Greens (SZ) MP Olga Zubová from the election due to health concerns and of Social Democrat (ČSSD) MP Evžen Snítilý. Moreover, Communists nominated an independent candidate, a member of the European Parliament and a journalist-turned-politician, Jana Bobošíková, to raise their stakes in bargaining. This tactic nevertheless brought no benefit, and Bobošíková withdrew just prior to the start of voting. In a public vote, Klaus received support from 141 lawmakers in each of the three rounds of voting. Švejnar received 111 votes in the third round, 15 less than in the previous round.

Another result of the uncompromising presidential battle was that all five parties that are represented in the Lower House said they supported the introduction of a direct presidential election by a constitutional change.

II.5 Regional Administration

Table II.5.1 Regions

Number of regions	13[a)]				
Minimum size (km²)	3,163	Minimum population	304,343	Minimum number of municipalities	132
Maximum size (km²)	10,057	Maximum population	1,269,467	Maximum number of municipalities	1,048
Average size (km²)	5,943	Average population	689,166	Average number of municipalities	473
Municipalities with extended jurisdiction					
Number of municipalities with extended jurisdiction			205		
Minimum size (km²)	48	Minimum population	9,500	Minimum number of municipalities	1
Maximum size (km²)	1,242	Maximum population	376,172	Maximum number of municipalities	111
Average size (km²)	382	Average population	44,200	Average number of municipalities	31

Note: [a)] Data for capital Prague are excluded from the tables since Prague has a specific status.
Source: Czech Statistical Office

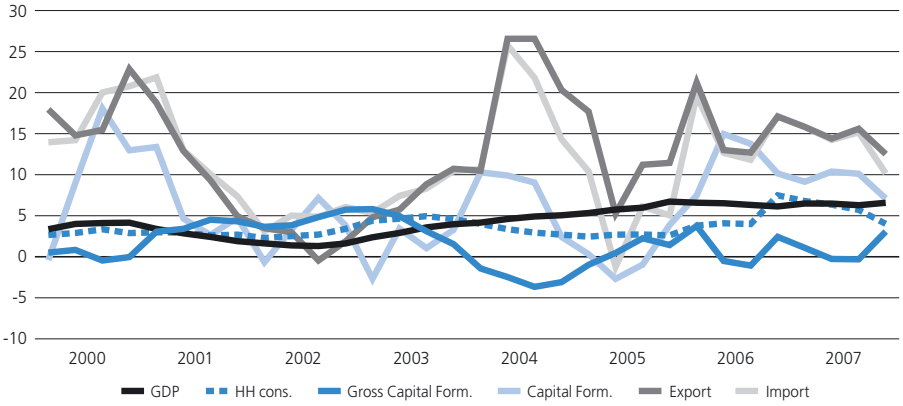
The local government in the Czech Republic has two layers: 6,234 municipalities and 14 regions (NUTS 3). These are self-administered units; people elect their representatives for municipal and regional councils. The municipalities are responsible for the usual kinds of local public services (elementary schools, local libraries, street cleaning, etc). In addition to that, 205 bigger towns have a special status of "municipalities with extended jurisdiction." These also carry out some administrative agendas of the central government (ID cards and passports, social security allowances, special child care, legal protection, driving licenses, etc.) not only for their own residents but also for the residents of nearby smaller municipalities. This arrangement was adopted in 2003, when the 76 county offices of the central government were abolished and their competences transferred either downstream to the "municipalities with extended jurisdiction" or upstream to the regional governments.

While the division of administrative responsibilities between the regional governments and the central government is clear, the two groups continue to clash over the division of funds, which are still largely controlled by the center. The regional offices took over some administrative duties, and, more importantly, hundreds of health, social, and cultural institutions formerly administered by the county offices. These institutions are still financed by grants from the central budget, leaving little freedom for financial management decisions by regional offices.

III. MACROECONOMY

III.1 Gross Domestic Product

Figure III.1.1 GDP Growth Decomposition (% growth rate, year-to-year)



Source: Czech National Bank

In 2007, the Czech economy continued to perform at a high-growth pace. The registered growth rate remained high at 6.6%. During 2005–2007, the growth rate remained above 6%, which is a unique event in the recent history of the Czech Republic.

As in 2006, the two types of expenditure that mostly contributed to the observed growth were final consumption and gross capital formation at 2.9 and 2.5 percentage points, respectively. Export growth remained significant at 14.5%, while the import demand grew by 13.7%. The increase in imports is in line with a high increase in real gross capital formation (9.2%). In other words, as investment in the Czech economy increased, it in

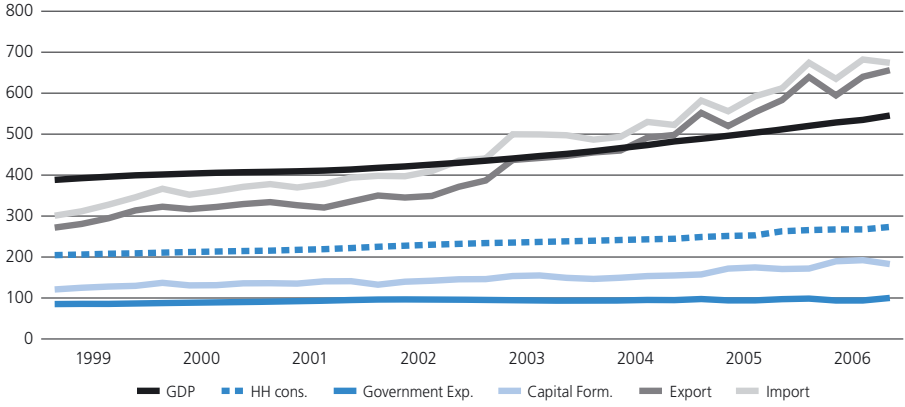
Table III.1.1 GDP Forecasts

	2006	2007	2008 Q1	2008 Q2	2008 Q3	2008 Q4	2009 Q1	2009 Q2	2009 Q3	2009 Q4
with adjustments to other forecasts[a]	6.4	6.5	5.3	5.6	5.8	5.1	5.6	4.6	4.2	4.8
without adjustments to other forecasts	6.4	6.5	5.3	5.6	5.8	5.1	5.6	4.6	4.2	4.9

Note: [a] After taking into account EIU and OECD predictions; it is assumed that these institutions forecasts depict systematic bias or deviation from actual figures.

Source: CERGE-EI Forecasting Model

Figure III.1.2 Levels of Macroeconomic Aggregates (billions of CZK, 1995 prices)



Source: Czech National Bank

turn led to an increase in demand for foreign capital goods. The trade balance contribution to growth was 1 percentage point.

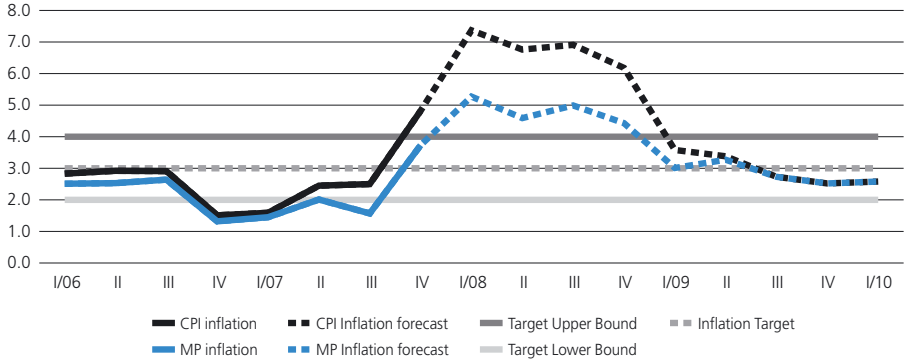
On the production side, manufacturing growth was 11.1%, which was the main component contributing to the gross value added (3 percentage points). The second most important factor of growth was trade (1.8 percentage points). Other service types, like hotels and restaurants, transportation and financial intermediation also significantly contributed to growth (altogether 2.9 percentage points). Agriculture and utilities were the main sectors that had negative growth rates (-14.2% and -22.5%, respectively). Their total dampening effect on growth was 1.1 percentage points.

According to the CERGE-EI forecasts presented in Table III.1.1, there is likely to be a slowdown in the growth rate of GDP in 2008 and 2009, with the predicted average growth rate being 5.5% and 4.8%, respectively. These predictions are higher than the forecast produced by the Czech National Bank, which puts the figures at 4.1%, and 3.6%, respectively.

III.2 Monetary Policy and Inflation

Year-on-year headline inflation showed an increase over the year 2007 after a period of very low inflation in the previous year. In the first quarter of 2007, inflation was 1.6%, which is below the lower boundary of the tolerance band of the Czech National Bank's inflation target (2%). However, due to a moderate depreciation of the exchange rate vis-à-vis the Euro and an increase in the world prices of raw materials, inflation started to rise in the first half of 2007. This trend continued despite a strong currency appreciation at the end of 2007. Inflation shot up in the last quarter of 2007 to 4.8% (i.e. above the upper boundary of the inflation target). The rise in consumer price inflation can be mainly attributed to an increase in the price of food (13% year-to-year in December 2007) and

Figure III.2.1 Inflation Rate and its Forecast



Source: Czech National Bank

regulated prices (6.5% year-to-year in December). The steep increase in food prices has domestic and foreign sources that are differing in their nature. Domestic shocks to food prices originated from the expected change of value added tax on food products effective since January 2008. Foreign shocks originated from an increase in world prices driven by demand for staple food products like grain, rice or milk. There are also significant effects due to an increase in the consumption tax on tobacco products. As shown in Figure III.2.1, the difference between CPI inflation and inflation excluding tax changes and the contribution of administrative changes is significant.

In 2008 the Czech National Bank (CNB) will celebrate ten years of its inflation targeting regime. Since the adoption of inflation targeting, the regime objective has changed from net inflation to CPI inflation (headline inflation). For 2008, an inflation target of 3% with a tolerance band of one percentage point in either direction (the same as for year 2007) was announced in January 2006. In March 2007, the CNB Board announced a new inflation target of 2% that will be effective from January 2010. The new inflation target is more closely related to the likely rate of inflation required to fulfill the Maastricht conditions for adopting the Euro. However, the target date for Eurozone entry was missed under the previous government and the current government has not set a new one. The earliest possible year of entry is now 2012. While fulfillment of the Maastricht criteria on this calendar looks feasible, the current government is calling for further reforms and much deeper alignment with the Euro area before entry. The pros and cons of this argument are difficult to assess.

A major change in the inflation targeting regime originates from abandoning the secrecy of the CNB's inflation forecasts. As of the beginning of 2008, the CNB will start to publish its inflation forecast and forecast-consistent path of interest rate in the form of fan charts. In addition, the minutes from monetary policy meetings will reveal bank board members' votes.

As far as it relates to the inflation forecast, headline inflation (according to the CNB) peaked at 7.4 % in the first quarter of 2008, when the increase in regulated prices (14%) took place. This increase stemmed from sig-

nificantly increased energy prices for households, increases in regulated rent, and newly established fees in the health sector. Starting in the second quarter of 2008, the inflation rate has been slowly declining. Starting the third quarter of 2008, it is forecasted that the inflation rate should begin a steep decline reflecting the incorporation of administrative price changes into the base.

Starting from 2.50% in May 2007, the CNB increased the two-week repo rate four times in the second half of 2007 and once in February 2008 in a series of five quarter-of-a-percentage-point increases all the way to 3.75%. In response to a decrease in inflationary pressures resulting from strong currency appreciation, the interest rate was decreased to 3.50% in August 2008.

CERGE-EI Forecasting Model

The predictions of GDP and inflation presented in this and the previous section were calculated using the CERGE-EI forecasting model. The model combines a number of econometric techniques. Forecasts from these statistical models are weighted by their variability, which results in more accurate predictions. We have been producing forecasts for 13 Central and Eastern European countries since the second half of 2006. Forecasts released on July 15, 2008 are reported in the table below. The growth of these economies is somewhat slower and it is expected to slow down more by the end of 2008, but it is still fairly robust. The inflation rate is higher than a year ago but is expected to decrease. The unemployment rate is likely to remain stable in most countries in the sample. The position of the Czech Republic among the 13 countries is characterized by an above average growth rate of GDP, a low inflation and a low unemployment rate. Please refer to http://www.cerge-ei.cz/forecast/ for further details.

Table III.2.1 CERGE-EI Macroeconomic Forecasts

	Annual growth, %				Inflation, %				Unemployment, %			
	2008 Q3	2008 Q4	2009 Q1	2009 Q2	2008 Q3	2008 Q4	2009 Q1	2009 Q2	2008 Q3	2008 Q4	2009 Q1	2009 Q2
Bulgaria	4.3	4.2	4.5	4.5	5.6	4.8	4.0	4.5	5.3	5.7	5.7	5.3
Croatia	4.6	4.5	5.5	5.1	2.8	2.9	2.9	2.9	17.1	17.0	16.9	16.8
Czech Republic	**5.8**	**5.1**	**5.6**	**4.6**	**4.8**	**4.2**	**2.5**	**2.8**	**5.8**	**5.4**	**5.4**	**5.4**
Estonia	5.3	6.2	6.6	6.6	5.9	5.5	5.0	4.5	7.1	6.7	7.0	7.2
Hungary	4.1	3.3	3.9	3.5	3.6	4.3	5.0	5.2	7.0	7.0	6.9	7.1
Latvia	11.2	11.3	11.0	9.6	5.5	4.4	3.5	3.0	6.3	6.2	6.5	5.7
Lithuania	6.6	6.8	7.0	8.3	9.7	9.7	8.8	7.3	4.0	5.2	6.0	4.7
Poland	5.1	4.8	4.6	4.4	4.2	4.5	4.5	4.4	9.3	8.9	9.0	8.1
Romania	7.2	6.6	6.5	6.1	7.2	6.9	6.3	5.8	3.5	3.5	3.6	2.9
Russia	4.8	5.4	6.0	5.8	6.2	5.5	5.2	4.5	7.3	7.5	8.2	8.2
Slovakia	9.7	8.2	9.8	10.2	4.0	4.2	4.1	3.9	9.6	8.8	8.8	8.2
Slovenia	5.7	5.0	5.4	4.2	6.1	5.9	5.4	4.7	6.2	6.2	5.8	5.6
Ukraine	6.7	6.4	6.2	6.8	22.8	24.0	22.4	17.5	1.9	1.9	2.1	1.8

Source: CERGE-EI Forecasting Model, Manager of the CERGE-EI forecasting project: Petr.Zemcik@cerge-ei.cz

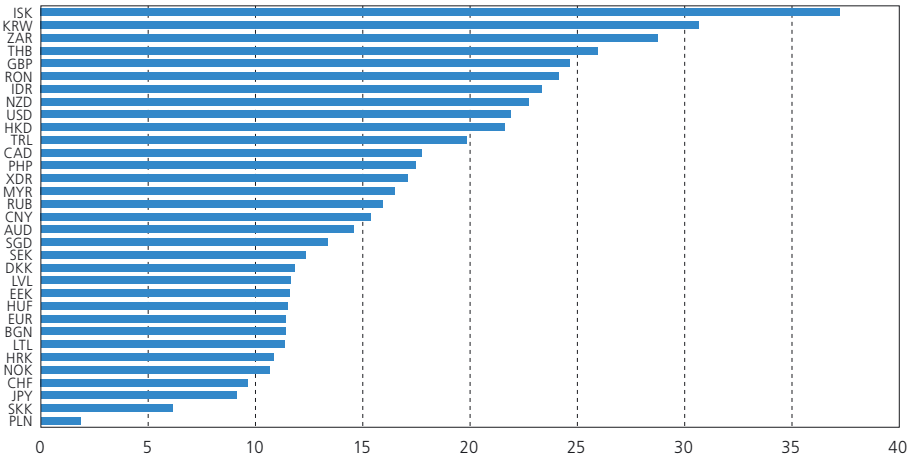
III.3 Czech Currency in 2007: Record Appreciation but the Euro not in Sight

Figure III.3.1 Nominal Effective Exchange Rate of CZK

Source: Czech National Bank

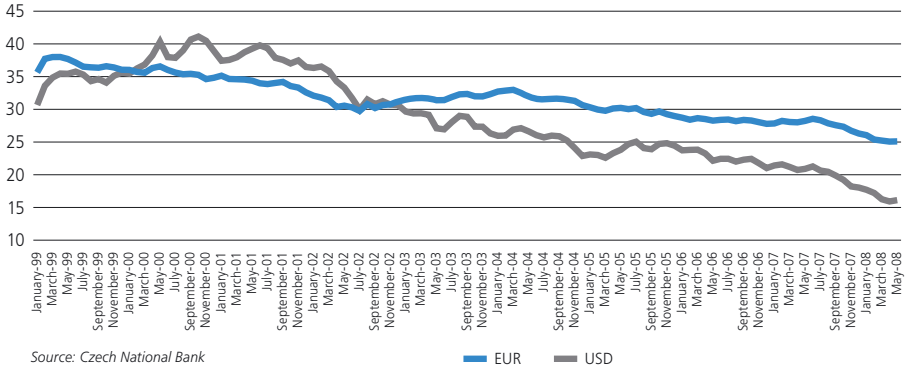
If we consider only changes in the basic framework of the Czech exchange rate policy, the year 2007 can hardly seem exceptional. The crown kept its managed floating regime and adoption of the Euro or ERMII regime (peg to Euro) did not occur. The Euro still played the role of reference currency, as this role was dictated by the share of EU in Czech foreign trade (85% of exports, 71% of imports in 2007).

Figure III.3.2 Appreciation of CZK between July 2007 and May 2008



Source: Czech National Bank and author's calculations

Figure III.3.3 Exchange Rates of the Dollar and the Euro, Mothly Averages



Source: Czech National Bank

The view changes when we take a look at the value of the Czech currency. While the Czech crown was relatively weaker in the first half of 2007 (because of conversions of dividends and trade within "carry transactions"), a very steep growth in the value of the Czech crown started in the second half of 2007. Figure III.3.1 describes this development from a long-run perspective. While the Czech crown has been appreciating for most of its history, the second half of 2007 and the beginning of 2008 brought nominal and real appreciation to levels that the currency had only experienced before the deep devaluation that accompanied the beginning of economic reforms in 1991.

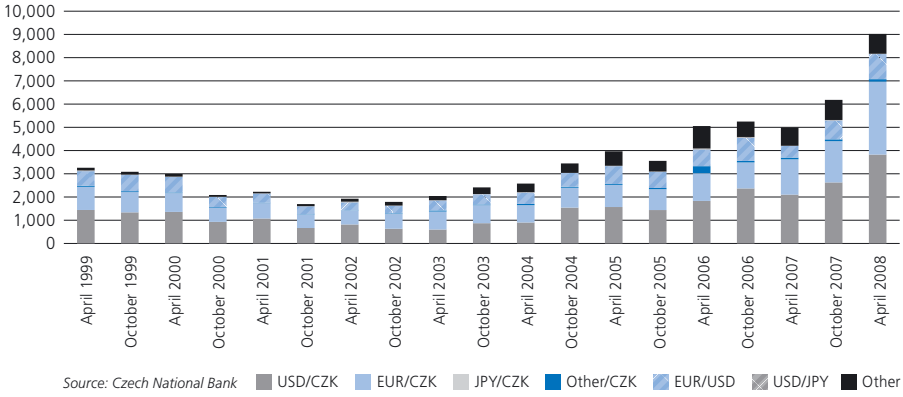
While Figure III.3.1 describes the average appreciation against a weighted average of currencies of the main trade partners, Figure III.3.2 shows appreciation against individual major currencies between July 2007 and May 2008. It shows that the Czech crown was not only appreciating "on average", but it was gaining against all major currencies. Figure III.3.3 demonstrates that the appreciation was much stronger with respect to the U.S. dollar than with respect to the Euro (23% and 10% between March 2007 and 2008 respectively).

Causes of the Appreciation

When analyzing changes in exchange rates, we must differentiate between the position of the Euro and other currencies. The position of the Euro is specific because of the high share of the EU and the Eurozone in Czech foreign trade; exchange rates between CZK and all other ("non-Euro") currencies depend on the exchange rates of these third currencies and the Euro, and changes in the CZK/EUR exchange rate. A large part of the appreciations described in Figure III.3.3 were therefore also caused by the declining value of the U.S. dollar (and of currencies directly or indirectly tied to the dollar).

There are two causes that can explain the long-run trend towards real appreciation as a natural and equilibrium phenomenon. Firstly, a gradual improvement in the marketability of Czech products in foreign markets (thanks to quality upgrades, improved marketing and distribution networks); secondly, a higher growth of productivity in the tradables sector compared to the main trading partners (the Balassa-Samuelson effect). These two effects explain why currencies of successful transition and emerging economies should appreciate in the long run and also predict that this type

Figure III.3.4 Czech Forex Market Turnover (millions USD per day)



of real appreciation does not endanger the price competitiveness and external balance of the economies.

However, even though both of these effects predict long-term and gradual appreciation, they are hardly sufficient to explain the rapid changes experienced by the Czech crown in 2007 and early 2008. The more likely culprit in this case were the economic turbulences experienced by developed economies (especially an economic slowdown and problems of the financial sector in the U.S.) that contrasted with fast economic growth and relative stability of selected transition economies. This is a motive that may also be present in the second half of 2008; the Czech currency can be viewed as a relatively "safe haven" that attracts inflows of foreign capital. Figure III.3.4 shows the increasing turnover on the Czech Forex market in 2007 and 2008.

Economic Implications of the Appreciation

The recent rate of real appreciation exceeds productivity growth. Figure III.3.5 shows the index of the real effective exchange rate of

Figure III.3.5 Real Effective Exchange Rate Index Deflated by the Real Unit Labor Cost*

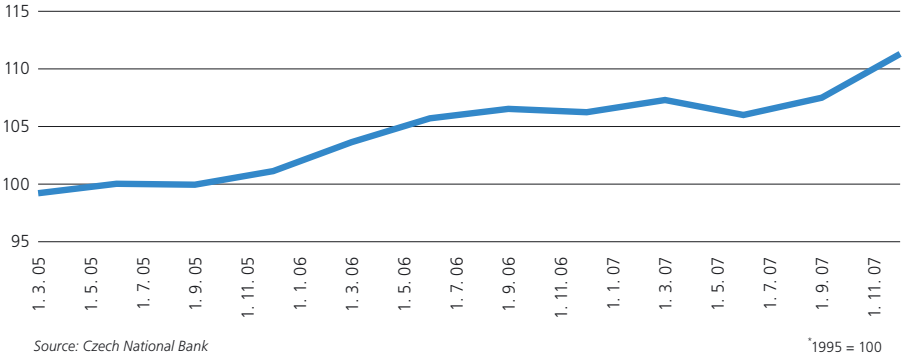
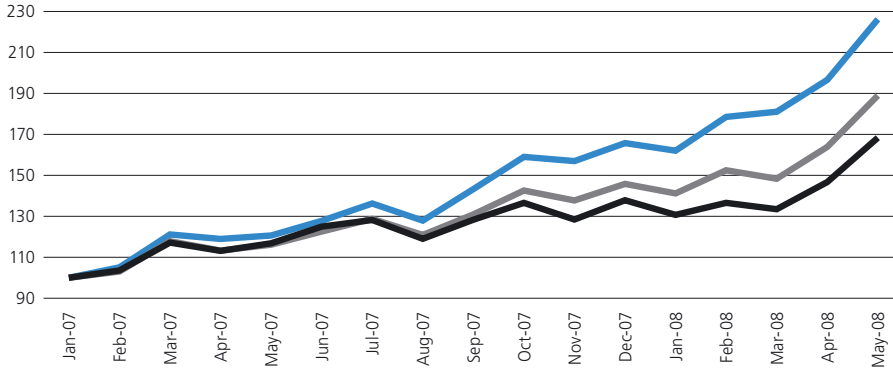


Figure III.3.6 Exchange Rates and Oil Prices*



Note: FOB spot price for Brent, end of month, index 1/2007 = 1000
Source: Energy Information Administration and Czech National Bank
* January 2007 = 100

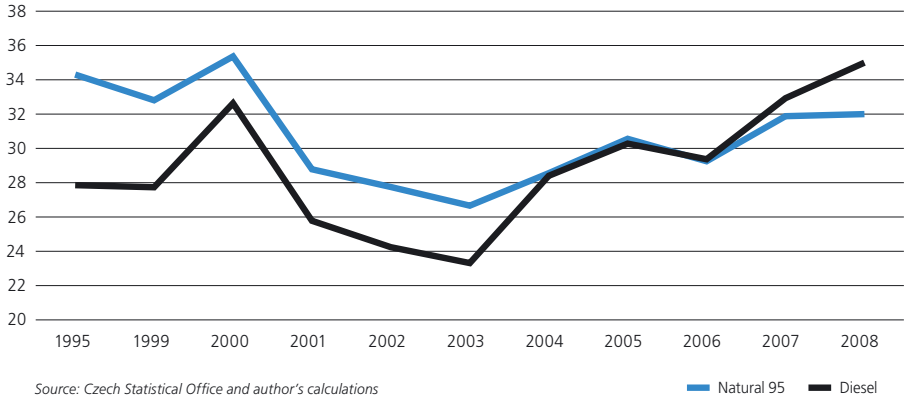
the Czech crown deflated by real unit labor costs. This indicator measures the impact of changes in exchange rates and takes into account possible compensation of the changes by increases in relative productivity or labor. The figure shows that the rate of appreciation experienced by CZK since the second half of 2007 was too fast. The net real appreciation (and negative impact on exporters' profits) between the first quarters of 2007 and 2008 exceeded 9%. According to estimates of the CNB, this development has not caused substantial damage to Czech companies so far, but the risk of defaults of exporters will be gradually increasing. In addition to this, the strong crown is likely to negatively influence the inflow of foreign tourists and therefore decrease the surplus on the service account of the balance of payments.

On the other hand, the appreciation also played a positive role. Czechs who got used to undervalued currency in the 1990s welcomed the positive impact on their purchasing power abroad. The strong crown also partially insulated the economy from a large part of the impacts of increasing oil prices. Figure III.3.6 compares the relative price of oil expressed in USD, CZK, and EUR; while the prices in USD more than doubled between January 2007 and May 2008 (+126%), prices expressed in CZK increased by less than 70%. The exchange rate managed to compensate most of the changes before March 2008. As a result, the inflation-adjusted price of gasoline has not changed much on average since the year 2000 *(Figure III.3.7)*.

What next?

The recent appreciation experienced by the Czech crown has been too fast. While it is unlikely to continue at the same speed (indeed, we have observed a correction against the Euro in the later part of the summer) because of possible negative impacts on Czech exporters, the Czech crown will still be appreciating in the long run. The development of exchange rates between the crown and currencies other than Euro will be, as before, determined primarily by the development of the EUR/USD exchange rate and by the relative economic development in the U.S., EU, and Eastern Asia.

Figure III.3.7 Gasoline Prices (in CZK per liter, 2008 prices)



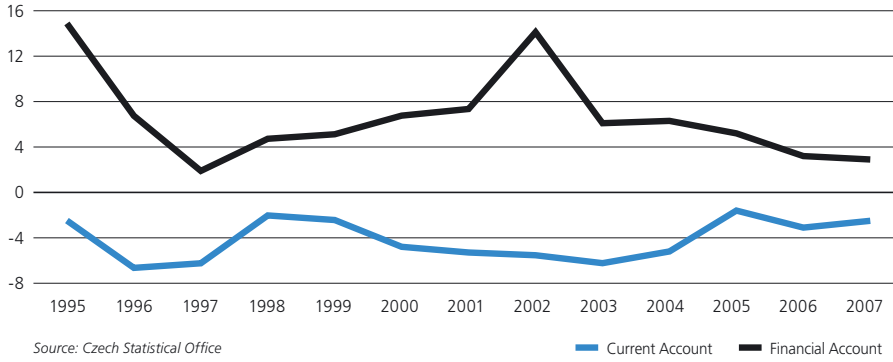
Source: Czech Statistical Office and author's calculations

The pressure felt by Czech exporters has led to renewed discussions about the speed of adopting the Euro *(see Section VIII.1 for more discussion)*; some of the exporters hope that a fixed exchange rate between the Czech currency and the Euro would protect their price competitiveness at least for exports to EMU markets. However, unlike Slovakia, the Czech Republic will not introduce the Euro in January 2009. The Czech government and the CNB have not even set any binding target date for Czech entry into the Eurozone; their position remains cautious mainly because of alleged inflation threats related to premature adoption of the Euro. As far as formal prerequisites for the adoption of the Euro are concerned, the Czech Republic used to struggle with the fiscal criterion regarding the deficit. This changed in 2008, and currently it is inflation and the decision not to implement ERMII peg to the Euro that stands between the Czech Republic and the Euro. If we compare the relative development of the Czech currency (and economy) with the Slovak currency which just met the Maastricht criteria, it seems that the Czech economy should not have any major problems with meeting the criteria when the government and the central bank decide to approve the transition to the Euro.

III.4 Balance of Payments

The structure of the Czech balance of payments is determined by the Czech Republic's position in the European economy: a small, less developed but fast-growing member country of the EU which relies on foreign trade and foreign investment. The development of the Czech balance of payments and investment position therefore has a pattern that is very similar to the development in other Central European transition economies. The Czech economy initially had a current account deficit caused by a balance of trade deficit compensated by inflow of foreign capital. The continuing inflow of foreign investment gradually worsened the balance of investment position (negative since 1996,

Figure III.4.1 Current and Financial Accounts (% GDP)



Source: Czech Statistical Office

-1240 billion CZK in 2007) and changed the structure of the balance of payments as well. The pro-export effect of investment and the transfers of returns on the investments helped the balance of trade in goods and services to become positive (since 2004, +4.9 billion CZK in 2007), but the current account as a whole remained in red numbers due to outflow of dividends (-2.5 billion CZK in 2007). The balance of financial account remains positive (+104 billion CZK in 2007) and the country is still a recipient of substantial foreign direct investment. However, unlike in the past, a high share of foreign direct investment is being financed from reinvested earnings from previous investments.

Even though the year 2007 was quite turbulent (the subprime mortgage market crisis in the U.S., decreasing value of USD, increasing price of oil), the Czech economy managed to cope with the challenges and its external balance remained sound; the current account balance improved to -2.5% of GDP.

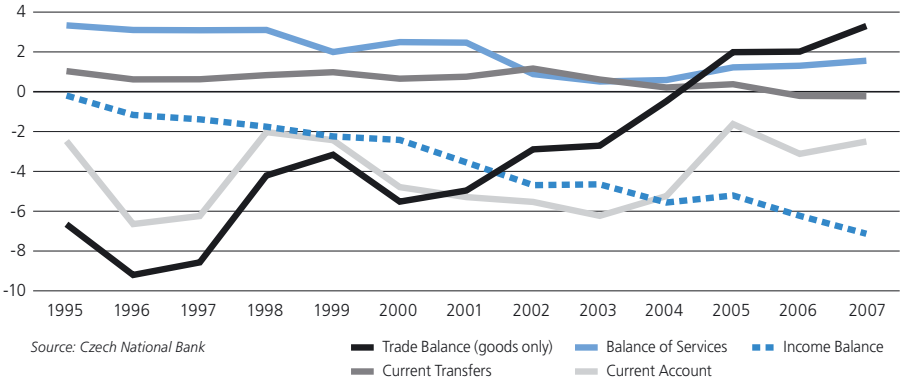
Table III.4.1 Czech Balance of Payments

Billions of CZK	1993	1995	1997	1999	2001	2003	2005	2006	2007
Current account	13.3	-36.3	-113.0	-50.6	-124.5	-160.6	-48.5	-100.8	-89.0
Trade balance	-15.3	-97.6	-155.2	-65.8	-116.7	-69.8	59.4	65.1	117.5
Services	29.5	48.9	55.9	41.5	58.0	13.2	36.5	42.2	55.4
Income balance	-3.4	-2.8	-25.1	-46.7	-83.5	-119.9	-155.7	-201.3	-253.8
Current transfers	2.6	15.2	11.3	20.4	17.8	15.8	11.3	-6.8	-8.1
Capital account	-16.2	0.2	0.3	-0.1	-0.3	-0.1	4.7	8.5	19.7
Financial account	88.2	218.3	34.3	106.6	172.8	157.1	154.8	104.9	104.5
Direct investment	16.4	67.0	40.5	215.7	208.3	53.5	279.6	102.8	158.2
FDI	19.1	68.0	41.3	218.8	214.6	59.3	279.2	135.9	185.3
Portfolio investment	46.7	36.1	34.4	-48.3	34.9	-35.7	-81.2	-26.9	-53.2
Change in reserves	-88.3	-197.9	56.0	-57.1	-67.2	-12.9	-92.9	-2.1	-15.7

Source: Czech National Bank

Current Account

Figure III.4.2 Composition of the Current Account (% of GDP)



Source: Czech National Bank

Changes in the balance on the current account are determined primarily by two components: balance of trade and income balance. The other two components are either relatively stable (the positive contribution of trade in services) or their value is relatively small (current transfers).

The Czech Republic used to have a trade deficit since 1993. The deficit peaked in 1997 and forced the authorities to change the exchange rate regime and continue with economic reforms. The trend changed, and the deficit steadily decreased from 2000 and eventually turned into surplus in 2005. This trend continued in 2007 and the surplus increased to 117.5 billion CZK (3.3% of GDP), mainly on the back of strong foreign demand and new production capacity built by FDI. This increase was also helped by improving terms of trade. In spite of the increasing prices of oil, the overall import price index decreased and the terms of trade improved by 2.3% *(see Table III.4.2)*.

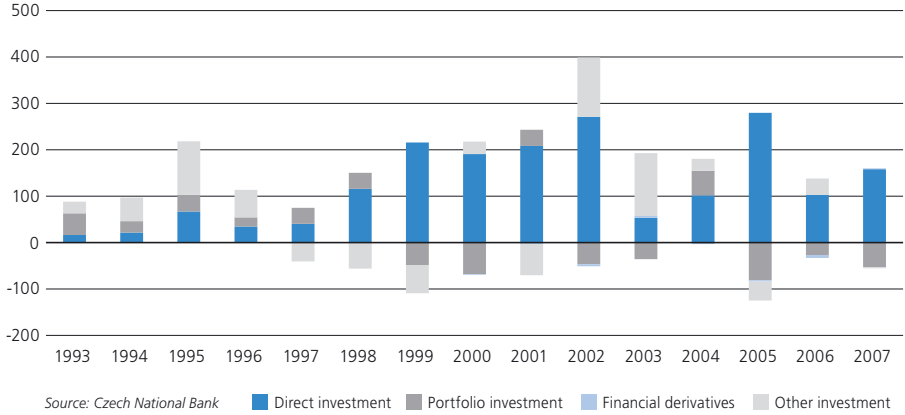
The income balance, however, shows a reverse pattern. Even though both the credit and debit sides of the balance were increasing, the debit side was growing faster and the initially small deficit steadily expanded until this item started to dominate the Czech current account. The increasing debit has two major components: investment income (319 billion CZK in 2007) and compensation of foreign employees (76 billion CZK). The most important component of investment income was the income from foreign direct investment into the Czech Republic (248 bil-

Table III.4.2 Terms of Trade

	2003	2004	2005	2006	2007
Export prices	0.9	3.7	-1.5	-1.2	1.3
Imports prices	-0.3	1.6	-0.5	0.3	-1.0
Terms of trade	1.2	2.1	-1.0	-1.5	2.3

Source: Czech Statistical Office

Figure III.4.3 Structure of the Czech Financial Account (billions of CZK)



lion CZK, or 6.9% of GDP), which rose by 19.9% on a year-on-year basis. Even though Czech investment abroad has been increasing too, the inflow of income from Czech investment abroad was significantly lower (142 billion CZK). The same can be said for compensation of employees, where payments to foreigners employed in the Czech Republic exceed payments to Czech residents working abroad (according to official figures, the number of foreign employees is more than 9 times higher than the number of Czechs working abroad). Overall, the income balance ended up in a deficit of 7.1% of GDP in 2007.

The capital account used to play a fairly negligible role until the Czech accession into the EU. At present, the capital account also records (among other payments) contributions from the EU structural funds. This inflow (and also the results of trade with emission credits) led to a surplus of almost 20 billion CZK. Other types of transactions with the EU are recorded as current transfers, and the balance on these other flows was negative (-4.5 billion CZK).

Financial Account and Reserves

The financial account has been positive for the whole existence of the Czech Republic. The balance of flows of FDI has been the most important component since 1997. On the other hand, the balance of flows of portfolio investment is mostly negative. Year 2007 was not an exception; the whole financial account ended with a surplus of 104 billion CZK, the inflow of FDI exceeded the outflow by 158 billion CZK (*see Section III.6 for further details*), whereas the portfolio investment outflow exceeded the inflow by 53 billion CZK. The structure of portfolio investment was rather asymmetric. While Czech investors invested in both foreign stocks and bonds, foreign investors were buying Czech bonds but shunned Czech stocks. The remaining two components of the financial account (financial derivatives and other investments) played a less important net role in 2007.

The continuing inflow of foreign capital led to increased deficit of investment position (34.9% of GDP), and so the Czech Republic

is and will be a net debtor in the foreseeable future. The foreign debt increased to 1.35 trillion CZK, most of it denominated in foreign currency (about two thirds). The public sector's share of the debt amounts to 20.2%. Financing of the debt service amounts to 4.4% of exports of goods and services and does not constitute any significant danger. The foreign exchange reserves decreased by 25.6 billion CZK because of the appreciation of the Czech currency. If measured net of changes in exchange rates, the reserves actually increased (+15.7 billion CZK); this was mainly caused by the returns from investing the existing reserves.

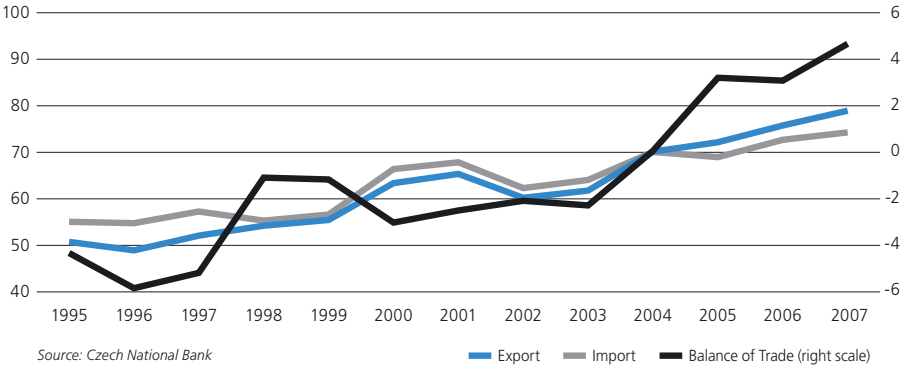
Expected Development in 2008

The three basic trends shaping the Czech balance of payments are likely to remain unchanged: a surplus in trade with goods and services, a deficit on current account, and a surplus on the financial account. There are three other factors, though, that can decrease the surplus of the trade balance and increase the deficit on the current account. Firstly, the rapid appreciation of the Czech crown (*see Section III.3*) may hurt Czech exporters. However, currently available data do not show any dramatic worsening of trade balance caused by the appreciation. Secondly, the Czech Republic depends on imported oil, and cars constitute a substantial share of its exports, which renders the country vulnerable to increasing oil prices. Fortunately, the adverse effects of oil prices on terms of trade have been partially tempered by the appreciation of the currency, and the negative impacts of fuel prices on the demand for cars can be watered down by the fact that local producers specialize in smaller and more fuel efficient models. Thirdly, repercussions of the mortgage loan crisis may decrease demand for Czech exports. However, the most important export markets (the EU) are likely to be hit less directly. Consequently, dramatic changes in the external balance and especially a recurrence of the 1997 crisis are improbable. Even though some worsening of the current account may occur, the year 2008 is likely to resemble the year 2007 in the overall picture.

III.5 Foreign Trade in 2008

The Czech economy is very open and the importance of foreign trade is further increasing. Exports amount to 79% of the country's GDP, while imports reached 74% as of 2007. Figure III.5.1 shows the increasing magnitude of both exports and imports, as well as a noticeable correlation between the two. This correlation is a result of high import intensity of exports, as export of goods accounts for 88% of total exports (as of 2007). The trade balance flipped from deficit into surplus in 2004. Despite a strong appreciation of the Czech currency (the Czech crown gained 18% vis-à-vis the Euro over the period January 2004–December 2007), the trade surplus further widened in 2007. To some extent this can be explained by increased production capacity related to new export-oriented FDI and relatively strong demand in the Eurozone and Slovakia. The currency appreciation improved nominal trade statistics too, as import prices slightly decreased while export prices increased over the course of 2007.

Figure III.5.1 Foreign Trade, Goods and Services (% of GDP)



Source: Czech National Bank

Main Trading Partners

Since the beginning of 1990s, when foreign trade of the former Czechoslovakia rapidly changed its orientation from the former Soviet bloc to the EU countries, the importance of the EU in bilateral trade has been steadily increasing. Export to the EU27 accounts for 78.2% of all exports as of 2007, with Germany being the major export destination (30.8% of all exports). On the import side, Germany's share is 28.1%, followed by China at 7.8%, with the year-on-year growth of the latter at a strong 44.6%.

Specialization

Having produced 943,000 cars in 2007, the Czech Republic's main exporting category is machinery and transport equipment (SITC 7). It amounts to 54.2% of all exports and rose by 17.4% on a year-on-year basis in nominal terms. Such a narrow specialization may, however, be risky for the future development of exports. Since the demand for cars is in general strongly pro-cyclical, the Czech economy is becoming more sensitive to changes in external developments.

Table III.5.1 Main Trade Partners

Country	Export share in 2007	Y-o-Y Change in Export 2006–2007	Country	Import share in 2007	Y-o-Y Change in Import 2006–2007
Germany	30.8	11.2	Germany	28.1	11.9
Slovakia	8.8	20.2	China	7.8	44.6
Poland	6.0	22.2	Poland	5.8	15.6
France	5.4	11.8	Slovakia	5.4	13.7
United Kingdom	5.0	20.7	Italy	4.8	16.1
Italy	4.9	21.4	Russia	4.7	-11.0
Austria	4.7	5.1	France	4.6	8.7
Netherlands	3.7	17.4	Netherlands	3.9	9.6
Hungary	3.1	20.6	Austria	3.8	16.0
Belgium	2.8	13.9	Japan	3.3	21.8

Source: Czech Statistical Office

Table III.5.2 Specialization

SITC Categories	Export share in 2007	Y-o-Y Change in Export 2006–2007	Import share in 2007	Y-o-Y Change in Import 2006–2007
Total	**100.0**	**15.3**	**100.0**	**13.4**
0 Food and live animals	2.9	17.1	4.3	15.0
1 Beverages and tobacco	0.6	37.8	0.7	21.0
2 Crude materials. inedible. except fuels	2.6	18.6	2.4	-2.1
3 Mineral fuels. lubricants and related materials	2.7	9.8	8.0	-4.5
4 Animal and vegetable oils. fats and waxes	0.1	22.5	0.1	-12.3
5 Chemicals and related products. n.e.s.	5.8	11.2	10.4	13.4
6 Manufactured goods classified chiefly by material	20.4	13.1	20.9	16.5
7 Machinery and transport equipment	54.2	17.4	43.0	18.0
8 Miscellaneous manufactured articles	10.6	10.7	10.1	9.1
9 Commodities and transactions n.e.c. in the SITC	0.0	24.6	0.1	17.9

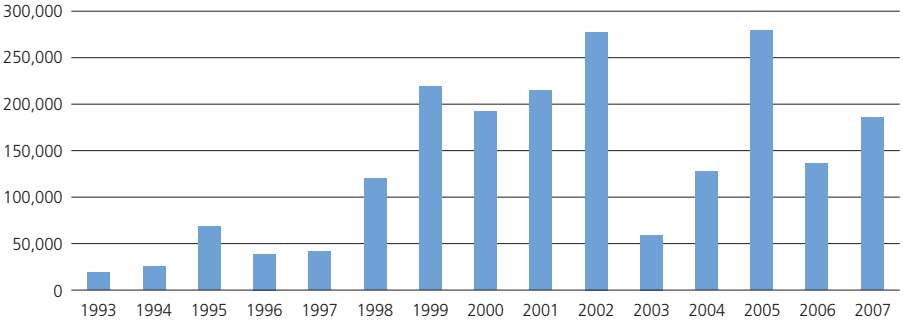
Source: Czech Statistical Office

III.6 Foreign Direct Investment (FDI)

According to the Czech National Bank, the amount of FDI in the Czech Republic at the end of 2007 reached 88.9 billion USD. On average during the period 1995–2007, FDI influx reached 7.5% of GDP, but there were big differences between years, caused in particular by large privatization deals. FDI flows accelerated only in 1995 and continued to grow thanks to the privatization of three big banks and Transgas during 1998–2002. The years 2003 and 2004, however, saw no major large-scale investment projects and increase in the stock of FDI was significantly lower and spread across a number of economic activities. In 2005, the Czech government sold its 51% stake in the major telecommunication company to Spain's Telefónica. This deal, worth 3.5 billion USD, was the major privatization of the post-communist era. In 2005, another of the controversial government's major privatization projects – the sale of oil and gas giant Unipetrol – was finally resolved and the majority stake of 63% was acquired by Poland-based PKN Orlen, with an agreement on a three-year restructuring program. Due to these large deals, the FDI inflow jumped to 11 billion USD in 2005. Despite there being no large privatization deals in 2006 and 2007, the total inflows are estimated to be 6 billion and 9 billion USD, respectively.

There still remains a 67.6% share in the electricity monopoly CEZ to be privatized. The expected price of that stake is 250–300 billion CZK. Of course, the government would have to give up the profit that flows yearly from CEZ ownership – about 22 billion CZK and growing. Meanwhile, however, CEZ contributes to FDI outflows with its investment in Romanian, Bulgarian and Polish distribution companies. By the end of 2007, the stock of Czech investment abroad reached about 6.3 billion USD, of which the 2007 FDI outflow is estimated to reach 1.3 billion USD.

Figure III.6.1 FDI Flows into the Czech Republic (1993–2007, millions of CZK)

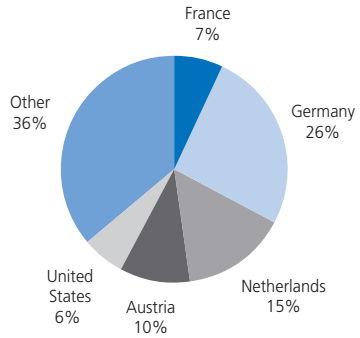


Note: Until 1997, the data include only FDI in equity capital; starting from 1998, data on reinvested earnings and other capital are included as well.
Source: Czech National Bank

This outflow is still rather low, but it can be expected that the recent surge in inward FDI will be followed, with a certain lag, by a growth of outward FDI in the future. Most outward investment was directed to other Central and Eastern European or Asian countries in the past. In 2007, however, one third of outward FDI went to EU countries, particularly the Netherlands. This means that the outward geographical structure is converging to the structure of inward FDI. To date, about 89% of inward FDI comes from the EU15, with the major investor being Germany. A substantial part of FDI from and to other non-European countries surprisingly comes also through the Netherlands, most likely due to favorable business conditions there.

The industrial structure of FDI is dominated by manufacturing, with its share reaching 38% on total FDI stock by the end of 2007. The role of foreign capital in Czech manufacturing has been steadily growing over time. Recently, foreign-owned manufacturing firms were estimated to produce 65% of total manufacturing sales, provide employment to 45% of workers in the sector,

Figure III.6.2
FDI Stock (1993–2007) by Source Country



Note: Until 1997, the data include FDI in equity capital; starting from 1998, data on reinvested earnings and other capital are included as well.
Source: Czech National Bank

and produce about 80% of total manufacturing exports. Foreign ownership also prevails in banking and public utilities, the energy sector being the only exception. Foreign direct investment is an important component of transformation in the Czech economy and helps to facilitate rapid change. For many companies, the resulting improvements in performance are crucial to becoming competitive on global markets.

IV. FINANCIAL AND BUSINESS ENVIRONMENT

IV.1 Czech Capital Market

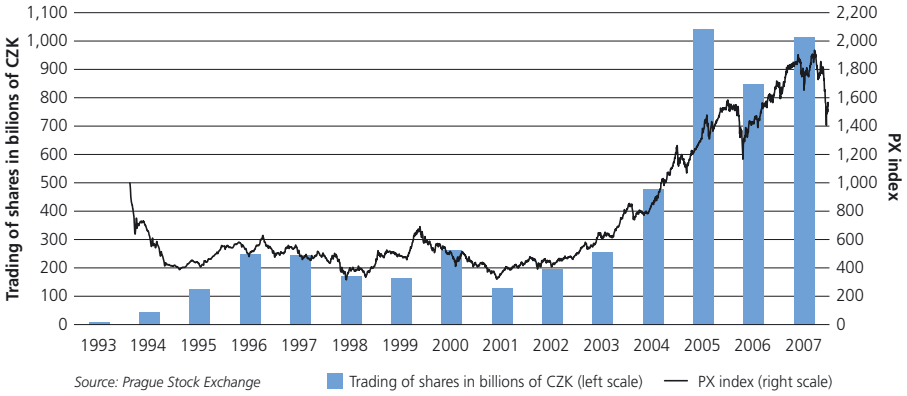
Historically, the development of the Czech capital market has been rather nonstandard due to the voucher privatization implemented at the beginning of the transition process. About 1,700 companies were introduced to the newly established Prague Stock Exchange (PSE) following privatization. In comparison, the number of listed companies was twice that in the Polish market and five times larger in proportion to GDP. Unfortunately, market forces were not strong enough to cope with such a huge number of illiquid shares and the expectations of establishing a strong market within a short period of time were not fulfilled. Instead, insider trading, price manipulation, fraud in the investment funds industry, abuses of minority shareholder rights and low transparency prevailed in the mid-1990s. To improve the situation, the PSE authorities undertook market segmentation, delisting of illiquid shares, and introduction of a new trading system (SPAD) for blue chips. Unfortunately, these measures did not contribute to any significant improvement and PSE trade did not boom. Only developments since 2004, when the Czech Republic entered the EU, indicate that the market is becoming more standard in the sense that companies are starting to use it as a source of capital and investors as a place to invest their money. As of May 1, 2004, the PSE became a full member of the Federation of European Securities Exchanges (FESE) and in the same year the U.S. Securities and Exchange Commission officially granted the PSE the status of a „designated offshore securities market" and included it into the list of offshore exchanges reliable for investors.

The first IPO (initial public offerings) of Zentiva (a pharmaceutical firm) took place in June 2004. The volumes of trades as well as the PX index value grew significantly between 2003 and 2005, but it lost almost 25% during 2006 partly due to global uncertainty. After the first successful IPO of Zentiva, only two IPOs took place in 2006 when shares of ECM A.G (real estate) and Pegas (non-woven textiles) started trading on the main market of the PSE.

Year 2007 recorded an improvement as the volume of shares traded reached 1,013,018 billion CZK, which is the second highest value in its history and represents a 14.24% increase from year 2006. Market capitalization grew to 1,841.7 billion CZK, of which 1,275.5 billion CZK was due to domestic issues and 566.2 billion CZK due to foreign issues. The shares of ČEZ, Komerční Banka, Zentiva, Erste Bank and Telefónica were the top trading stocks on the market in 2007. As for new market participants, in September 2007 the AAA Auto Group became the first IPO on the PSE with shares traded in the automatic trading regime and in SPAD. In December 2007, VGP, a leading company in constructing industrial complexes and semi-industrial parks, undertook dual public offerings on the PSE and at the Euronext Exchange in Brussels.

The PSE expanded the range of financial products and launched trading of investment certificates and futures contracts in 2006.

Figure IV.1.1 Development of the Prague Stock Exchange PX Index and Trading of Shares (1993–2007)

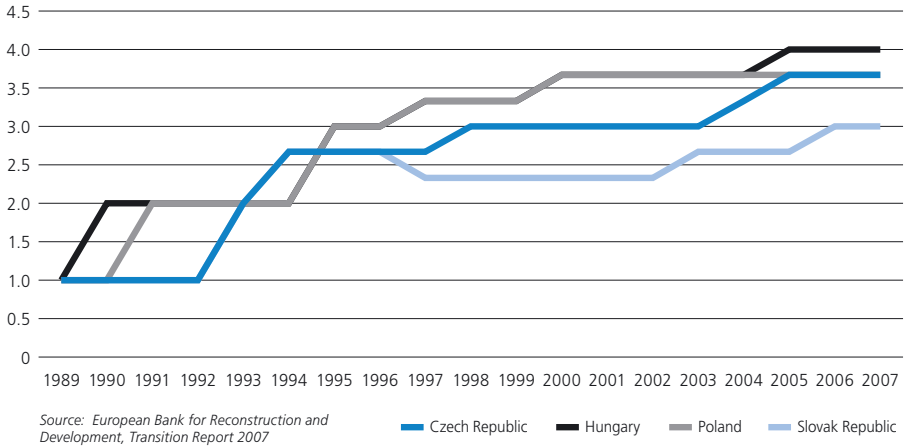


Even though the amounts of trades have not been very high so far, it is expected that they will rise within several years when investors get used to these new instruments. This was also the case in Poland where trading with futures started in 1998 and the number of transactions increased 30 times within two years and then doubled in the consecutive year. A growing interest in novelty securities was recorded in 2007 when the PSE offered a three-month and a six-month futures contract on shares of ČEZ and Erste Bank traded in the SPAD elite segment. Another example is Volksbank AG, which introduced eleven new investment certificates to the market and thus became an issuer of structured products on the PSE.

In March 2007, the Prague Energy Exchange (PXE) was established. Being the first energy exchange market in the CEE region, the PXE is aimed at creating a new transparent price-making system and standardized platform for electrical energy trade in the Czech Republic. Actual trading on the PXE started in July 2007 with three products in the base load: delivery of electrical energy in October, November and December 2007. By August 2007, the PXE registered a record-breaking trading volume of 118,569,885 EUR, or 2,196,960 MWh.

Even though the PSE was considered to be the target of acquisitions for larger European stock exchanges in previous years, the situation changed and in March 2007 the PSE announced its interest in competing for the 44% share of the Sofia Stock Exchange in Bulgaria, which is going to be privatized. From the PSE perspective, there is great potential in the dynamically developing Bulgarian market that can be developed even further with the unique experience of the Czech capital market. In comparison, the total volume of trade at the PSE reached 38.4 billion EUR in 2007, with market capitalization of 69.2 billion EUR. In the same year, the Sofia Stock Exchange reached a volume of 5.09 billion EUR, with a market capitalization of 14.82 billion EUR. To date, however, no other public announcements have been made on the actual implementation of the bid for the Sofia Stock Exchange.

Figure IV.1.2 Transition Indicators: Securities Markets and Non-bank Financial Institutions



Source: European Bank for Reconstruction and Development, Transition Report 2007

On May 23, 2007, the PSE adopted a new structure for the regulated exchange market by merging its main and secondary markets under the new title "main exchange market". The new structure reflects the amendment of the Act on Undertakings on the Capital Market in accordance with Markets in Financial Instruments Directive (MiFID), an EU law which provides a harmonized regulatory regime for investment services across the 30 member states of EEA to promote competition and consumer protection.

According to the EBRD Transition Report 2007, the overall performance of non-bank financial institutions in the Czech Republic achieved a stable indicator of 3.67 during 2005, 2006 and 2007. This means that the country achieved a large issue of private equity, established independent share registries and settlement procedures, and promoted non-bank financial institutions and an associated regulatory framework. In comparison with other CEE countries, the Czech Republic performed better than Slovakia, but worse than Hungary and Poland. For instance, Hungary earned an indicator of 4 already back in 2005, meaning that the country's securities laws and regulations approached International Organization of Securities Commissions standards, and that there was substantial market liquidity and capitalization, well-functioning non-bank financial institutions, and effective regulation.

The number of IPOs is another important comparative indicator of regional stock exchange performance. Several years ago, the number of shares traded on the PSE was decreasing; nowadays the situation seems to be gradually improving. Following the first IPO of Zentiva in 2004, there were only two IPOs on the PSE in 2006 and another two in 2007. A new big IPO of New World Resources (NWR), the Czech Republic's biggest producer of hard coal, took place in May 2008. NWR raised funds in the Prague, London, and Warsaw Stock Exchanges. Nevertheless, in comparison with neighboring countries, the Czech Republic is still

Table IV.1.1 Companies Listed on the Warsaw and Budapest Stock Exchanges

	WARSAW STOCK EXCHANGE		BUDAPEST STOCK EXCHANGE	
	New listings	Listed companies	New listings	Listed companies
1991	9	9	14	20
1992	7	16	3	23
1993	6	22	5	28
1994	22	44	12	40
1995	21	65	5	42
1996	18	83	6	45
1997	62	143	10	49
1998	57	198	8	55
1999	28	221	16	69
2000	13	225	1	62
2001	9	230	1	58
2002	5	216	0	49
2003	6	203	2	53
2004	36	230	1	47
2005	35	255	1	45
2006	38	284	3	43
2007	81	349	3	46

Source: Warsaw Stock Exchange, Budapest Stock Exchange

Table IV.1.2 Stock Market Capitalization. Trading Volume and Turnover Ratio

	PRAGUE STOCK EXCHANGE			WARSAW STOCK EXCHANGE			BUDAPEST STOCK EXCHANGE		
	Market Capitalization (% of GDP)	Trading volume (% of GDP)	Market Turnover Ratio	Market Capitalization (% of GDP)	Trading volume (% of GDP)	Market Turnover Ratio	Market Capitalization (% of GDP)	Trading volume (% of GDP)	Market Turnover Ratio
1994	n. a.	3.2	n. a.	2.9	5.2	177.5	2.9	0.7	22.4
1995	19.5	6.6	33.6	2.7	2.0	72.5	4.5	0.8	17.7
1996	27.3	13.6	49.8	4.1	3.5	85.5	8.5	3.6	42.8
1997	27.1	12.4	45.6	6.5	5.1	77.3	22.1	16.3	73.8
1998	20.1	7.8	38.6	9.5	5.2	54.7	30.9	34.1	110.3
1999	19.9	6.8	34.5	14.9	6.6	44.5	31.6	30.0	94.7
2000	20.2	11.6	57.3	17.9	8.5	47.8	29.8	25.3	85.0
2001	16.6	5.4	32.6	15.2	3.9	25.7	21.2	9.0	42.6
2002	16.8	8.1	48.1	13.9	3.0	21.2	17.7	8.9	50.4
2003	18.5	9.6	52.1	15.3	3.9	25.6	17.8	9.8	55.3
2004	22.5	16.3	72.5	21.5	6.6	30.5	22.3	12.7	57.0
2005	28.0	33.1	118.1	27.3	9.9	36.2	27.9	21.7	77.6
2006	30.9	23.2	75.0	36.1	16.2	45.0	33.3	27.6	83.0

Source: The World Bank New Database on Financial Development and Structure 2007

substantially falling behind in the number of IPOs *(see Table IV.1.1)*. The reasons for this are connected to the way the stock market was established. In the course of voucher privatization, the market was created by an administrative decision that ignored the usual listing requirements. Moreover, due to the strong position of banks and relatively easy access to credit during the transition process, there was no need for the capital market.

The Warsaw Stock Exchange is the most successful exchange in the region in terms of the number of IPOs, which reflects the participation of small and medium enterprises that are still missing on the PSE and the active trading of Polish investment funds. The Polish market was created as a standard market and not as a byproduct of voucher privatization as in the Czech Republic. Therefore Polish small investors have not experienced negative sentiment resulting from the disappointment after voucher privatization, which arguably still hinders more widespread participation of Czech inhabitants in stock and fund ownership.

The above comparison with the Warsaw and Budapest exchanges indicates that the PSE has the potential for further development in several directions. Pension reforms and an active role of pension funds (and other local institutional investors) would significantly contribute to further growth, an increase in the number of IPOs, and market stabilization. Following the Hungarian approach, direct or indirect subsidies for companies considering IPOs would be very helpful as well. Most important, the stock exchange should be used to privatize the companies that are still owned by the state.

The Reaction of Asset Prices to Macroeconomic Announcements in New EU Markets: Evidence from Intraday Data

Based on: Hanousek, Jan, Evžen Kočenda and Ali M. Kutan, 2008. "The Reaction of Asset Prices to Macroeconomic Announcements in New EU Markets: Evidence from Intraday Data." Forthcoming in Journal of Financial Stability.

We analyze the impact of macroeconomic announcements on stock market returns and volatility in the Budapest, Prague and Warsaw financial markets. This is the first study which focuses on emerging EU stock markets using stock price data based on high-frequency five-minute intraday data on the stock market index returns. We account for the difference of each announcement from its market expectation and we jointly model the volatility of the returns.

We focus on the impact of foreign news only, since the local news is less frequent and is released before the trade begins, and hence it arguably cannot affect intraday returns. In particular, we use various types of news from the EU markets and the U.S. The intraday data allows us to capture the true spillover effects of foreign macroeconomic announcements on the local markets.

We consider five categories of scheduled announcements: nominal macroeconomic aggregates (consumer price index, labor costs), real economy (GDP, current account, production, sales, trade balance, unemployment, etc.), monetary policy (monetary aggregate and interest rate), fiscal policy (debt, deficit, expenditures), and economic confidence (consumer

Table IV.1.3 Daily Distribution of News Events (percent of all trading days)

Country/Region	No news	Days with types of news events: Single news	Multiple news	Single and multiple news	Total
European Union	70.18	22.44	6.25	1.13	100.00
United States	31.15	29.20	18.85	20.80	100.00

Source: Bloomberg, Datastream, Reuters

and industry confidence, business climate, etc.). Our dataset covers the period from June 2, 2003 to December 29, 2006. Within this period, there are 1,372 announcements from the EU and the U.S. which may have affected stock prices during trading hours. These announcements were released in groups or as single announcements. However, it is difficult to decompose the individual effects of multiple simultaneous announcements. We therefore group them into the five categories listed above. Compared to previous studies, we use a larger set of announcements, but investigate their overall impact rather than individual contributions. The daily distribution by countries/regions is presented in Table IV.1.3.

We define the impact of the news by the difference of the announcement from market expectations. Thus, the impact of news from the excess impact perspective is formally defined by $xn_{kt} = (100\ (sn_{kt} - E_{t-1}[sn_{kt}]) / E_{t-1}[sn_{kt}])$, *where* xn_{kt} *is the excess impact news variable,* sn_{kt} *stands for the value of the scheduled announcement, and* $E_{t-1}[sn_{kt}]$ *is the value expected by the market.*

In order to account for the impact of news on stock returns in the form of deviation from market expectations and the effects of spillovers from the neighboring markets, we apply the augmented version of the generalized autoregressive conditional heteroskedasticity (GARCH) model. As trading hours are different in different markets, we account for this difference by estimating the set of mean equations for each of the three emerging markets as seemingly unrelated regressions. Moreover, this approach allows for common factors in the CEE markets to affect the estimates.

Overall, we find that all three new EU stock markets are subject to significant spillovers directly from the composite index returns on the EU and U.S. markets; Budapest exhibits the strongest spillover effect, followed by Warsaw and Prague. The Czech and Hungarian markets are also subject to spillovers indirectly through the transmission of macroeconomic news. The impact of EU-wide announcements is evidenced more in the case of Hungary, while the Czech market is more impacted by U.S. news. The Polish market is only marginally affected by EU news. In addition, after decomposing pooled announcements, we show that the impact of multiple announcements is stronger than that of single news. Our results suggest that he impact of foreign macroeconomic announcements goes beyond the direct impact via the foreign stock market indices.

Using the obtained results, we conclude that the emerging markets tend to react to macroeconomic announcements in the same way as advanced industrial markets. This fact indicates that the emerging financial markets have made significant progress in terms of their development and have successfully integrated into the world economy.

Source of Information-driven Trading on Prague Stock Exchange

Based on: Kopřiva, František, 2008. "Source of Information-driven Trading on the Prague Stock Exchange." CERGE-EI Working Paper No. 365.

The extent of information-driven trading has been of interest primarily on developed markets. The Prague Stock Exchange could still be viewed as an emerging market. Based on its infrastructure and available information on trades conducted, it is an ideal market for studying information-driven trading linked to a particular market maker.

It is a special feature of the Czech capital market that several market makers also play a dominant role as brokers. Clearly, the market makers may become informed after observing their customers' orders, as, for example, a large order greatly affects the price on the Czech market. Although they may be able to take advantage of this information by trading on their own account, such a practice is probably not common since the large investors are key customers for Czech market makers. Existing studies conducted primarily on developed markets show that large informed investors often try to hide their trades by breaking up large trades into smaller ones. These studies suggest that the market structure influences how informed investors behave in order to hide their private information. In the case of the trading behavior of market makers on the Czech capital market, this corresponds to the fact that large investors often have contracts with market makers to optimize the processing of large orders. In other words, the market makers and large investors could be sharing private information. Such a practice may lead to the situation where several of the market makers are informed. Hanousek and Podpiera (2004) obtained the same probability of informed trading (PIN) in their analysis of shares of Česká spořitelna and Erste bank, which is surprising, as these two shares have very little in common from the trading perspective except for their market makers. Thus one could question to what extent the market makers affect the probability of informed trading.

The analysis uses intraday trading data from the PSE's SPAD trading system from 1. 1. 2003 till 30. 9. 2006. According to the specifics of the Czech capital market, we divided the data into two main parts: morning session running from 9:30 to 12:00 and the afternoon session running from 14:00 to 16:00. The reason is that the trading behavior of investors as well as market makers may follow significantly different patterns during the morning and afternoon sessions. Therefore, we decided to estimate the extent of information-driven trading for both sessions separately.

The results are summarized in Table IV.1.4. In nearly all cases, there was only one market maker whose behavior differed significantly from the rest of the market makers. Although the choice of time period was based on the results of rolling windows PIN estimations, we should point out the correspondence with significant events for particular stocks. For example, České Radiokomunikace was removed from the market in September 2004. However, the decision had to be made earlier in 2003. Telefónica O_2 was privatized in 2005 and the privatization process was quite complicated. The results for ČEZ, Komerční banka and Phillip Morris confirm that a high percentage of block trades (around 30%) or, in other words, large orders, may have a significant impact on the behavior of some market makers.

Table IV.1.4 Extent of Information Driven Trading Originating from the Behavior of Informed Market Makers

Stock	Time period	am/ pm	PIN	PIN MM	MM	Diff	T-stat	P-value
CRA	26.6.2003-15.10.2003	pm	0.531 (0.101)	0.808 (0.084)	MM 4	0.277 (0.138)	2.01	0.045
CEZ	2.1.2003-2.8.2004	pm	0.504 (0.020)	0.555 (0.020)	MM 7	0.051 (0.029)	1.79	0.074
EB	25.5.2004-1.11.2004	am	0.328 (0.036)	0.227 (0.039)	MM 1	-0.102 (0.053)	1.92	0.055
KB	5.2.2003-7.7.2003	pm	0.540 (0.034)	0.613 (0.031)	MM 7	0.074 (0.046)	1.61	0.108
KB	2.9.2005-26.1.2006	pm	0.368 (0.040)	0.466 (0.038)	MM 7	0.099 (0.055)	1.80	0.071
PM	14.6.2004-31.3.2005	pm	0.470 (0.037)	0.580 (0.033)	MM 7	0.110 (0.049)	2.23	0.026
PM	21.7.2004-29.11.2004	pm	0.480 (0.053)	0.584 (0.044)	MM 7	0.104 (0.069)	1.52	0.129
O2	21.5.2004-31.8.2004	am	0.497 (0.052)	0.648 (0.045)	MM 7	0.151 (0.068)	2.21	0.027
O2	11.6.2004-19.8.2005	pm	0.452 (0.025)	0.538 (0.023)	MM 7	0.085 (0.034)	2.47	0.013
O2	11.6.2004-27.12.2004	pm	0.474 (0.034)	0.573 (0.032)	MM 7	0.098 (0.047)	2.09	0.036
O2	20.4.2005-9.9.2005	am	0.546 (0.045)	0.648 (0.039)	MM 7	0.101 (0.059)	1.71	0.088
O2	8.11.2005-16.3.2006	am	0.349 (0.048)	0.443 (0.045)	MM 7	0.094 (0.065)	1.44	0.151
O2	21.12.2005-16.5.2006	pm	0.391 (0.038)	0.474 (0.036)	MM 7	0.082 (0.053)	1.57	0.117

Note: The PIN MM is the estimate of information driven trading using the sum of buys and sells except the buys and sells of given market maker. The standard deviations are in parentheses below each estimate.

Source: www.akcie.cz, author's calculations

Let us note that the significant difference in PIN does not imply that the market maker is an inside trader; he may just be processing a large foreign order or using a dual trading practice, which is not illegal in the Czech Republic. Nevertheless, rejecting the null hypothesis of equality of the estimates means that the market maker has a considerable imbalance between his mandatory sells and buys and his behavior differs from the behavior of other market makers during the particular time period. Significant differences in the behavior of market makers lead us to conclude that they do indeed affect the extent of information-driven trading. Under current regulation, some market makers are able to protect their private information and not reveal it completely for a surprisingly long time period. In other words, dominant market makers are able to use the market to achieve desired inventory positions rather than to supply liquidity to the market.

IV.2 Banking Sector

Since 1800, economic history has recorded a large number of crises occurring in various parts of the world. The 2007 U.S. crisis has been a complicated one, as the credit crunch contributed towards the crisis on the stock market, and U.S. banks experienced difficulties because of lack of liquidity. Czech banks, however, have not been touched by the U.S. credit crisis, mainly because they had not invested in exotic securities. These careful investment policies were induced by the previous painful experience of risky investment strategies in the 1990s. The only bank holding subprime securities was Československá obchodní banka (ČSOB), which had just 20.8 million EUR worth of such instruments out of about 36 billion EUR of assets (www.thebanker.com).

Moreover, the major banks including Česká spořitelna (ČS), ČSOB, HVB Bank Czech Republic, and Komerční banka (KB) reported positive earnings results for 2007.

The main contributors to this success were the growing mortgage and consumer loan markets. Mortgage loans are a relatively new product, not yet widely spread in the Czech Republic. Households' housing debt is only about 20% of GDP compared to 60% in the EU15 countries. ČS and Hypotéční banka (HB) are the largest mortgage banks in the market. During 2007, the Czech banks granted about 142 billion CZK of new mortgage loans, a 41% increase from the previous year. In the first quarter of 2008 the growth slowed down, though, due to higher interest rates and tighter credit conditions. The largest

Table IV.2.1 Financial Results of the Banks in 2007

Bank	Total assets (CZK mln)	Y/Y (%)	Net profit (CZK mln)	Y/Y (%)	Total Operating Profit, (CZK mln)	Y/Y (%)
KB	661,819	10.7	11,225	21.9	16,107	14.9
ČSOB	925,400	21.4	10,837	21.9	15,131	16.3
ČS	814,125	11.8	12,148	17.0	18,369	22.8

Source: Aspekt and Bankscope

Table IV.2.2 The Volume and Number of New Mortgages Provided to Individuals (2008, first quarter)

Bank	New mortgage volume (CZK bn)	Y/Y change (%)	Number of loans	Y/Y change (%)
ČS	4.7	-49%	2,589	-50%
Hypotéční banka ČSOB Citibank	8.9	3%	4,844	-9%
GE Money Bank	1.6	-8%	1,054	-2%
Raiffeisenbank	5.7	52%	3,232	35%

Source: http://www.praguemonitor.com/en/320/czech_business/21702/

fall in the volume of new mortgage loans (49%) was experienced by ČS and the largest growth (52%) by Raiffeisenbank *(Table IV.2.2)*. The expected growth of mortgage lending in 2008 according to different sources is between 13% and 25%.

Although the credit crunch has not affected the Czech Republic directly, there are some possibilities of indirect impact. One possible way is the impact on parent banks which can shift their portfolios to countries directly affected by the crunch. Another way is that the Czech Republic will be affected through its trade partners, because the country is largely dependent on the economic development of Western Europe. Indeed, the growth rate for the second quarter of 2008 dropped to 4.5% compared to 6.6% for the entire year of 2007.

Banking Sector in the Visegrád Four

Based on: Hanousek, Jan, Evžen Kočenda and Peter Ondko, 2007. "The Banking Sector in New EU Member Countries: A Sectoral Financial Flows Analysis." Finance a úvěr / Czech Journal of Economics and Finance, *57(5-6), 200-224.*

The development of the banking sector during the transformation from plan to market is one of the most researched topics in the economics of transition. Much of the research analyzes institutional settings, bank privatizations or banking performance and efficiency. However, little attention has been paid to analyzing financial flows between commercial banks and other sectors in the economy over the course of the transformation process. Our interest is in the development of the financial system in the Visegrád Four group of countries (V4, consisting of the Czech Republic, Hungary, Poland and Slovakia). Particularly, we investigate whether there is a common pattern of structural change, whether banks lose importance in the process of economic transformation, and whether the financial systems in these four countries have become more alike.

The emerging economies of the V4 embarked on an uneasy path of transformation from a command to a market economic system in the early 1990s. For them, the structure and health of the financial system turned out to play a fundamental role in the progress of transformation. As capital markets did not exist at all under central planning, banks merely played the role of savings collectors and income redistribution vehicles for the central governments, serving none of the important roles they assume in the market economy.

The direction and speed of the development of the financial system during transition has depended on a number of factors: the macroeconomic situation, the chosen course of privatization, the legal environment, and the openness of the economy to foreign investors, to name just some of the most important ones. Very little is known about the unique patterns of financial sector development from the perspective of how financial flows between banks and other sectors of the economy developed during the transformation period.

A commercial banking sector emerged in the V4 as a result of the breakup of the state bank (monobank) system combined with issuing licenses to new banks. All four countries

exhibited a similar level of state ownership in their banking sector in the early 1990s. Hungary experienced the fastest emergence of truly private banks as it managed to reduce state ownership from 75 % in 1993 to about 10 % in 1997. Poland and Slovakia conducted their banking privatization at a slower pace than did Hungary and on top of this the countries stagnated for a non-negligible time. Slovakia halted bank privatization during 1997–2000 but eventually continued at a rapid pace to complete bank privatization by 2001. Poland slowed down in 1999 and has stagnated with about 25 % of state ownership in banks since that time. The Czech Republic seemed to be working at the steadiest pace and managed to achieve full banking privatization by 2001. On the micro level, the privatization developments in each country differed considerably. In general, the banking sector transformation was a lengthy process for two main reasons. First, unlike firms that were a part of the command economies, commercial banks emerged as a new segment of the two-tier system after the monobank system was abolished. Second, many governments have proceeded with bank privatization at a slow pace to prolong control over firms through credit channels provided by state-owned banks.

The empirical results on monetary flows between various sectors and commercial banks during 1995–2005 show that in terms of credit, households are the largest creditors of the commercial banks in the V4. Non-financial companies are the second largest group in all four countries. In terms of debit, non-financial companies are the largest borrowers uniformly across the four countries. Furthermore, among the V4, two groups are formed. Hungary and Poland exhibit a much larger increase in financial flows between banks and other economic sectors when compared to the Czech Republic and Slovakia.

Structural breaks were identified in the majority of financial flow series. In all four countries, breaks in means appear in the year when the privatization of the banking sector was completed. Despite the fact that such evidence is only indirect, we conjecture that completed privatization was an important factor behind a dramatic change in the extent of credit and debit flows. There is also empirical evidence of the improved performance of banks after thorough privatization. Hence, the policy implication would be to adequately privatize the banking sector in other countries where transition still continues.

With respect to the viability of the banking sector, the V4 banks play an active role in financial intermediation. Based on the evidence, we conclude that the role of banks as mobilizers of savings from the non-financial sectors did not decline and that banking is not a declining industry in the V4. The high level of financial intermediation performed by banks, and in particular the transformation of deposits into loans which entail the monitoring of borrowers, and the qualitative transformation of capital indicate that banks play an important role in the economies of these new EU members. Certainly, neither during the transformation process nor shortly after joining the EU do we observe disintermediation or a loss of the importance of the banking sector in the V4 group. Furthermore, ownership links with banks in the "old" EU countries should enhance the banking sector in the new EU countries, helping them to successfully integrate into the financial sector of the Eurozone.

IV.3 Household Credit in the Czech Republic

Historical Development

There were 22 commercial banks in Czechoslovakia in the period after World War I. However, in 1948 Czechoslovakia became a centrally planned economy and the banking system was unified. The only institution that provided household loans, which were mainly targeted to newly married couples, was *Státní spořitelna*. In the mid-1980s, the government started to provide subsidies for loans for construction and modernization of family houses. Up to that time, indebtedness of the population was fairly low, but due to the government subsidy the demand for loans as well as household debt rose. After the collapse of communism in 1989 and during the transition of Czechoslovakia to a market economy, state subsidies of housing loans continued, together with subsidies of loans for starting entrepreneurs. The debt of the population rose from 30 billion CZK in 1990 to 91 billion CZK in 1994.

Českomoravská hypoteční banka was the first institution to offer housing loans in the 1990s, but only a very narrow group of clients' applications was approved. Interest rates were high at that time, and both credit supply and credit demand were limited, as borrowing was still a rather new phenomenon in the post-communist Czechoslovakia.

In October 1995, the Czech crown started to be traded on international monetary markets, but its exchange rate remained fixed. In 1996, the minimal reserves as well as interest rates were increased, which resulted in a slowdown of money growth and the supply of loans. This situation lasted until 1999 when, after a significant decrease in inflation, the Czech Central Bank reduced the principal interest rates. This stabilized the financial situation in the country and contributed to a rise in the amount of household debt starting around the year 2000. Although leasing companies and consumer credit companies (such as ŠkoFIN, CETELEM ČR, HOME CREDIT) offering instalment loans for product purchases entered the market during the 1990s, it was only after 2000 that the demand for credit from non-banking institutions rose significantly.

Figure IV.3.1 Household Debt in the Czech Republic (Billions CZK)

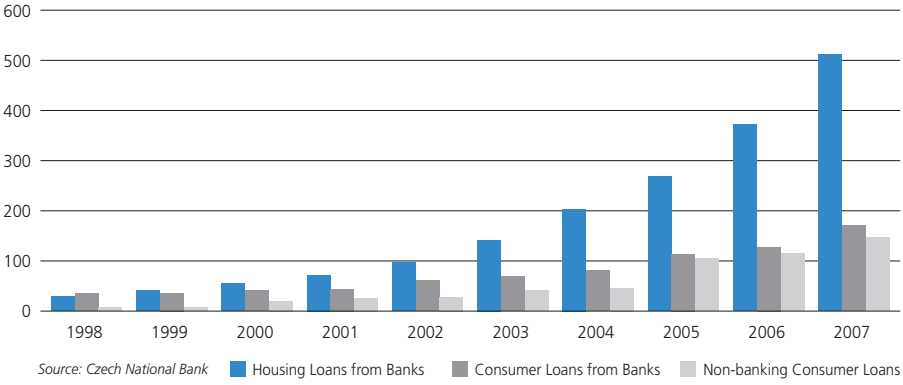
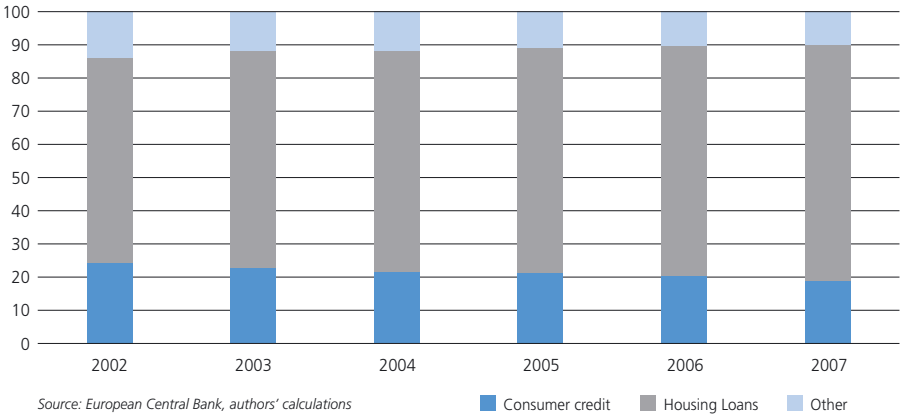


Figure IV.3.2 Composition of Household Debt from the Banking Sector (shares of total outstanding volume)



Source: European Central Bank, authors' calculations

The evolution of total household debt is captured in Figure IV.3.1. Total household borrowing remained below 110 billion CZK for the first decade after the change of political regime in 1989. It was only in the mid-2000s that it started to rise exponentially, reaching the level of 830 billion in 2007. Out of the 830 billion CZK, 680 billion consisted of loans from the banking sector and 150 billion CZK consisted of loans from the non-banking sector. In Figure IV.3.1, loans from the banking sector are further divided into loans for housing and non-residential real estate (housing loans), amounting to 510 billion CZK, and consumer loans from banks (including overdrafts), which amounted to about 170 billion CZK in 2007.

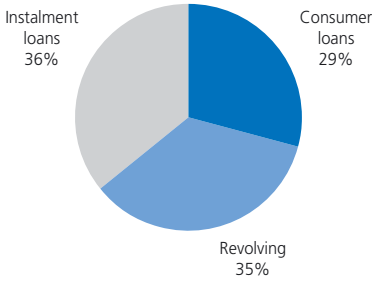
Composition of Household Debt by Sector and Type

Standard loan products offered by financial institutions can be divided into secured and unsecured credit. Secured credit, such as housing loans, requires collateral and is typically offered by banking institutions. Non-collateralized credit can be further divided into three groups: instalment products (consumer loans, instalment credit, and leasing), non-instalment products (overdrafts and approved debit on checking accounts), and credit cards.

Figure IV.3.2 shows the composition of household debt from the banking sector in terms of the different type of loans since 2002. While all the components of household debt have increased in absolute value over the given period, the composition has changed. Housing loans have increased their share in household debt from banking institutions from about 57% of the total household debt in 2002 to 71% in 2007. On the contrary, the relative share of consumer credit has declined from 23% to 19% over the past five years.

Household debt in the non-banking sector is currently dominated by financial leasing (76%) and consumer loans (18%). Figure IV.3.3 shows the composition of consumer loans from the non-banking sector in 2007.

Figure IV.3.3
Composition of Consumer Loans from Non-banking Sector (shares of total outstanding volume)



Source: Česká Leasingová a Finanční Asociace

Recent Evolution of Household Debt: Growth Rates

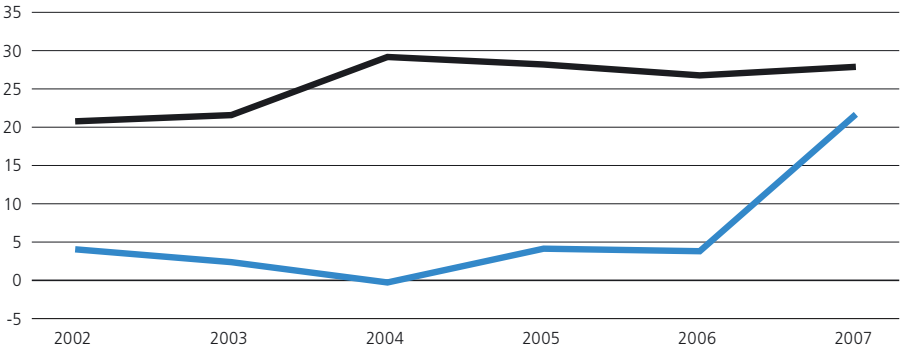
Recent evolution of the growth rate of total household debt in the banking and non-banking sector is presented in Figure IV.3.4. The rate of growth of the total amount borrowed by households from banking institutions culminated in 2004, then slowed down, and started to rise again in 2006, reaching 27.9%.

The growth rate of household debt from non-banking institutions declined until 2004, when the trend reversed, with growth rate of about 4% in 2005 and 2006. It was only in 2007 that the household debt from non-banking institutions soared, increasing by almost 22 % compared to 2006.

Information Sharing

A crucial condition for a well-functioning credit market is information sharing among credit providers. Information about the current debt burden of the applicants and about their credit history (in particular whether they have defaulted on their loans in the past) helps credit-granting institutions to better assess the new loan applicants' risk of default. Information sharing is typically managed by credit bureaus, which either collect information about the credit history of all the borrowers (white credit bureaus), or collect information only about borrowers who do not repay their debts (black credit bureaus). In many European countries, both types of credit bureaus coexist in the market and the Czech Republic is no exception. The Czech Credit Bureau (CCB) collects information about all the loans a

Figure IV.3.4 Household Debt Growth Rate by Sector (%)



Source: Česká Leasingová a Finanční Asociace, European Central Bank, authors' calculations

client has in banks and other financial institutions. The banking part of the Credit Bureau (CBCB) was established in November 2000 by its five current owners: Česká spořitelna, a.s., Československá obchodní banka, a.s., GE Money Bank, a.s., Komerční banka, a.s. and HVB Bank Czech Republic, a.s., and started providing information about banks' clients in 2002. Any bank that reports their clients' credit information to the Credit Bureau has access to the information reported by others. Currently, 22 banking institutions report to the CBCB and use its services.

The non-banking part of the credit bureau (LLCB) is owned by five major leasing and consumer credit companies: ČSOB Leasing, a.s., GE Money Auto, a.s., GE Money Multiservis, a.s., CAC Leasing, a.s., Santander Consumer Finance, a.s., ŠKOFIN, a.s., Leasing České spořitelny, a.s., and Autoleasing, a.s. It started providing credit history information in July 2005. LLCB is currently used by 18 financial institutions. In January 2006, the non-banking register joined the banking register under the head of the Czech Credit Bureau.

CBCB currently covers almost 100% of the banking retail market, more than 90% of the leasing market and more than 50% of the installment market. The probability that the client's information will be found in the CBCB register (i.e. the hit-rate) reached 90% by 2007. There were 4.7 million individuals registered with the CBCB at the end of 2007, who had borrowed a total of 827.5 billion CZK in 11.9 million loan contracts. Whereas in 2003, each borrower had on average 1.5 loans, the average number of loans per borrower rose to 2.5 in 2007, with the average debt per registered client being 176,000 CZK. The total amount of credit listed at LLCB reached 200 billion CZK by the end of 2007 (182,000 CZK of debt per client), with 1.1 million registered clients (individuals and companies) and 1.7 million contracts. In terms of contract composition in the banking sector, consumer loans (33%) dominate, followed by overdrafts (21%), and housing loans (11%). In the non-banking sector, about 52% of loans consist of purposed loans, 22% represent financial leasing, and 19% represent revolving loans (www.creditbureau.cz).

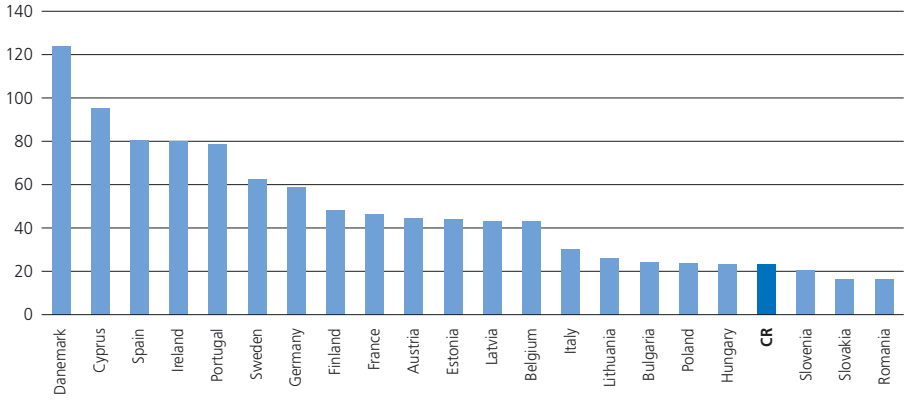
Since January 2008, CCB has offered a credit bureau score, an estimate of the probability that the client will default in the next 12 months after taking a loan. This score is likely to be used as additional information by financial institutions in their loan approval process. As credit history affects the probability of loan approval, CCB encourages people to build their credit histories in order to gain easier access to future loans.

Whereas CCB represents a white credit bureau, SOLUS, established in 1999, serves as a black credit bureau. The members of SOLUS comprise not only banks but also leasing companies and mobile communication companies. The answers from the two credit bureaus are available within seconds, and their services are widely used for new loan application evaluations by credit-granting institutions.

Household Debt in International Context

Figure IV.3.5 shows that household borrowing (measured as a ratio of the total household debt to GDP) was still at a rather low level of 23% in the Czech Republic at the end of 2007 when compared to the West European countries, where the share ranged from 124% in Denmark to about 30% in Italy. Among the post-transition countries, the Czech Republic ranks in the middle, after Estonia (44%), Latvia, Lithuania, and Bulgaria,

Figure IV.3.5 Household Debt/GDP Ratio (2007)



Note: The number for Cyprus and Ireland refer to the end of 2006.
Source: European Central Bank, authors' calculations

but before Poland, Hungary, Slovenia, Slovakia, and Romania (16%).

The ordering is more or less preserved when we focus on housing loans or consumer credit separately. While the share of housing loans reached about 17% of GDP, consumer credit amounted to about 4% of GDP in the Czech Republic in 2007. The corresponding maximum and minimum for the same sample of countries was 104% in Denmark and 3% in Romania for housing loans, and 20% in Cyprus (in 2006) and over 2% in Slovakia for consumer credit.

Key Factors behind Household Debt Growth

The main factors that have contributed to the very fast growth of household debt were declining interest rates, growth of household income together with favorable demographic changes on the demand side and, in particular, a substantial rise in the supply of credit.

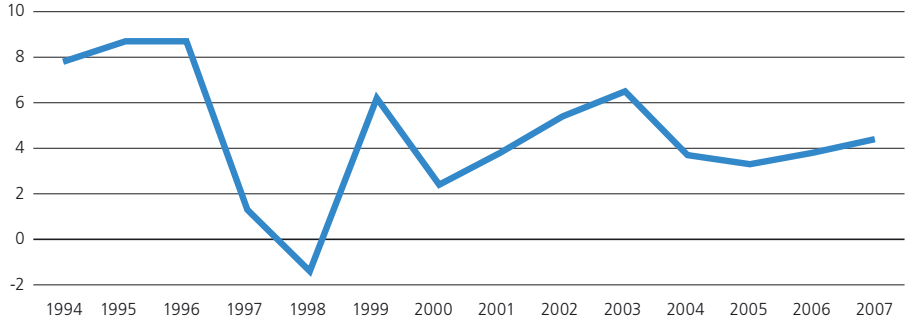
On the demand side, a major driver of credit growth is the growth in real income. Figure IV.3.6 shows that the average real wage has increased every year since 1994 except for the 1.4 % decline in 1998. The rate of growth has had an upward trend since 2000, boosting household consumption as well as demand for credit.

The rise in consumer prices after 2003 caused a temporary slowdown in the growth of the average real wage, but the upward, although slower, trend in the rate of growth was regained again in 2006.

Rational consumption smoothing suggests an increase in borrowing in reaction to the expectation of the acceleration in real wage growth. In addition, real wage growth increases the share of households that meet the minimal income requirements for household loan application approvals.

Another demand driver has been the demographic structure of the population. The current decade is characterized by strong population cohorts born in the 1970s forming families and having children or planning to do so, which drives their demand for independent housing.

Figure IV.3.6 Real Wage Growth (%)



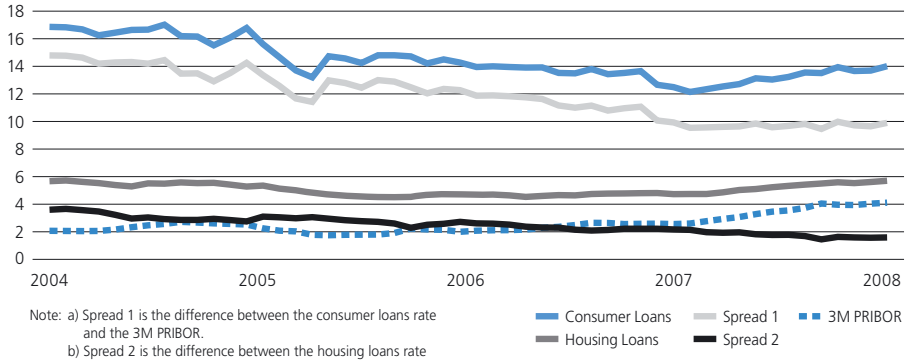
Source: Czech Statistical Office

There are two fundamental driving factors for growth in the supply of household credit. The first one is monetary policy. The interest rate in the economy (as measured by the two-week repo rate of the Czech Central Bank) declined sharply, from 14.75% in 1997 to 2% in 2005, and it was only in 2006 that the trend was reversed. The interest rate has slightly risen since then, reaching 3.75 % in February of 2008, coming down back to 3.5% in August *(see Section III.2 for details)*. While the interest rates on new loan products are affected by the degree of competition in the market, they follow on average the development of the nominal interest rate.

The second fundamental driving factor is increasing competition in the retail market. Currently there are 68 banks active in the Czech market, providing financial services to retail, SME and corporate clients. In addition, there are 18 non-banking financial institutions that provide loans to households. At the same time, mergers help financial institutions to increase their strength and gain competitive advantage. The merger of ČSOB and IPB, as well as Reiffeisenbank and eBank in 2008, and the merger of HVB bank and Živnostenská bank into Unicredit bank at the end of 2007 are prominent examples. The new entry of the Polish mBank (whose 45 year mortgage maturity maximum substantially exceeds the limit of 40 years on the currently available products) in November 2007 and the Russian bank BMS in May 2008 suggest that the market is considered profitable and further increase in competition may be expected.

The rising competition in the household credit market has increased the size of the offered loans and their maturity, lowered the fees and interest rate premiums, and eased the conditions of obtaining a loan. Figure IV.3.7 indicates that the spread between interest rates for new consumer and housing loans and the (wholesale) 3-month PRIBOR rate have exhibited a falling trend since 2004. The spread on new consumer loans declined from around 15 percentage points at the beginning of 2004 to less than 10 percentage points in early 2008. Similarly, the spread on new housing loans declined from almost 4 percentage points at the beginning of 2004 to less than 2 percentage points in early 2008. Given that the banks have recently become more aggressive in expanding their loans to riskier customer pools that require a higher risk premium, the power of competi-

Figure IV.3.7 Interest Rates and Competition



Note: a) Spread 1 is the difference between the consumer loans rate and the 3M PRIBOR.
b) Spread 2 is the difference between the housing loans rate and the 3M PRIBOR.

Source: Czech National Bank

tion in reducing the bank lending margins is even greater than indicated by Figure IV.3.7. Despite intensifying competition, the retail interest rates on both new consumer and housing loans rose in 2007 due to tightening of the monetary policy. However, the rates started to decline in August of 2008 after the CNB cut the repo rate by 0.25 of a percentage point.

As there are administrative fees connected with the purchase of a consumer loan, a better indicator for loan price attractiveness than its interest rate is RPSN, the percentage ratio from the loan amount that debtor must pay back to lender. While in 2003, RPSN ranged between 10%–19% across banks, with the lowest percentage restricted only to a narrow group of the best clients, it is currently around 15%.

The increasing supply competition in the credit market has also increased the maturity of offered loans, allowing borrowers to spread the repayment of the loan over a longer period, and therefore lower the monthly installment payments. While the maximum maturity in the banking sector was 5 years for a consumer loan and 30 years for a housing loan in 2004, the limits have currently increased to 7 years (unsecured loans) and 45 years (mortgages). In the non-banking sector, the maturity of the consumer loans may go up to 10 years.

Whereas in 2001 banks were willing to lend only up to 100,000 CZK without a guarantor, this limit increased to 200,000 CZK in 2004 and 300,000 CZK in 2007. The age limit for bank loan applicants increased from 60 years in 2001 to 65 years in 2004, and 68 years in 2007.

In 2000, the approval of a loan and the transfer of money to a client's account lasted more than a week. The whole administration process was shortened in 2003, in some cases only to 1 day. In 2005, E-bank offered people interested in borrowing the option to apply for a loan via internet-banking for the first time. The internet loan application is now a standard product, with the possibility of having the loan approved and money sent to the client the same day. In 2007, loan approval and money transfer could take only 30 minutes in some cases. In addition, many banks are now able to approve more products for one client at the same time.

Surveys have shown that the three main factors discouraging clients from asking for a loan are high interest rates, complicated administration process, and fear of being rejected. To mitigate the last reason, banks have started offering clients information help lines which they can call in order to find out, on the basis of their income and financial situation, whether they can borrow and under what conditions. For existing clients, this information is provided on their monthly statement.

Currently Offered Products

The conditions of typical loan products offered in the Czech Republic in 2008 were as follows. For a consumer loan of 100,000 CZK and a maturity of 5 years, a borrower pays between 0 to 1000 CZK in opening fees, 0 to 960 CZK in administration fees, and is charged an interest rate between 8.5%–14.52%. The interest rates on overdrafts range between 7.9% and 17.9%. The administrative fees for overdrafts range between 0 and 200 CZK for opening fees, and 0 to 30 CZK for monthly fees. The fee for credit cards is between 200 CZK and 6,000 CZK per year, with 30–55 days with zero interest rates, followed by a period with monthly interest rates between 1.33% and 2.2%.

In 2004, some banks started to offer a charge card, a new product that is similar to a credit card but which must be repaid 100% at a given time (in contrast to a classic credit card with the option of installment repayment), and therefore strongly resembles a consumer loan. Charge cards were offered to clients with the best risk profile. In 2008, a new product for internet shopping called PaySec (a Czech version of the American system PayPal) appeared on the market.

Internet banking represents a major tool for the reduction of product and administrative fees. Smaller and foreign companies are typically more efficient in providing new internet services and focus primarily on young clientele. Although the popularity of internet banking is rapidly increasing, so far only about 10% of clients use the internet for their banking transactions.

When taking a loan, clients have the possibility to insure themselves against negative circumstances that may lead to the inability to repay their debts. Since 2000, borrowers have been able to insure themselves against long-term work inability or against disability, and since September 2001 against job loss as well. The biggest provider of loan insurance in the Czech market is the insurance company Cardif PRO VITA. According to their data, only 19% of Czech households purchase insurance for their loans, when compared to the EU average of 25%. The majority of insurance payments processed by Cardif are due to job loss.

Future Prospects

The very low level of household debt in the Czech Republic, when compared to economies with fully developed credit markets, suggests that there is still room for a substantial increase in the extent of household borrowing. Gradual credit market integration within the EU is likely to be accompanied by a further increase in competition in the Czech credit market, leading to further expansion of the supply of credit, further improvements in borrowing terms, and increased access to credit in the long run. In the short run, an increase in the real interest rate and a slowdown in the growth of real wages are likely to slow down the sharp growth in household debt as observed in previous years.

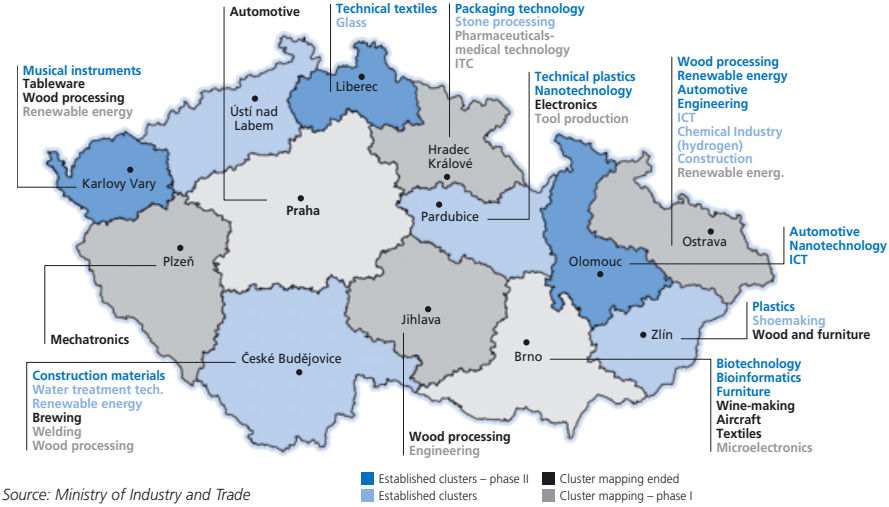
IV.4 Industrial Policy

The years of an ad hoc 'invisible' industrial policy of the early 1990s and investment incentive schemes, a major flagship of the Social Democrats after 1998, have recently been replaced by a novel industrial policy design focusing on the support of medium and high-tech investments, a more balanced approach to domestic companies including SMEs, and greater transparency. This move has been partly necessitated by the gradual exhaustion of major factors driving the outstanding growth record over the past couple of years. While the Czech Republic's favorable location in the heart of Europe did not change, a withdrawal of investment incentives, increasing shortages of skilled workers and the corresponding upward pressure on wages have called for policies that would release the bottlenecks preventing continued growth. These policies need to support innovation and R&D in both companies and universities in the Czech Republic, generate an adequate supply of qualified workers from the educational system, and implement migration policies that would make up for the imminent lack of demanded specialists. Importantly, while a large proportion of funding for these policy challenges comes from EU operation programs and frameworks, problems with project proposal preparation, funding transfers from Brussels, and actual implementation of the programs have impacted the effectiveness of Czech industrial policy over the last year.

Currently there are several initiatives aimed at promoting the innovation and R&D in the Czech economy. These initiatives mainly fall under the auspices of the Ministry of Industry and Trade and the Ministry of Youth, Schools and Education. The former body coordinates two major government strategies. The National Innovation Strategy was adopted in 2004 and serves as a basis for the national innovation policy over the period 2005–2010. The scheme includes support for industrial R&D as a major source of innovation, development of human resources and administrative capacity, and cooperation between public sector and private agents. The National Cluster Strategy approved a year later hopes to endorse new as well as existing public-private structures oriented toward innovation. The financing of each strategy relies on resources from the government budget as well as on the EU's Enterprise and Innovations Operation Program and Competitiveness and Innovation Framework Program. The funding for fundamental and applied R&D supervised by the Ministry of Youth, Schools and Education, on the other hand, draws on the EU's Seventh Research Framework Programme, together with the government budget.

In 2007, these schemes often suffered from domestic political instability, the poor quality of project proposals to be submitted to and approved by the EU Commission as well as slow administrative procedures and a lack of political will within the Commission itself. It was only in October 2007 that the first three out of 24 operation programs for the period 2007–2013 were approved. The head of the Czech Business Chamber, Jiří Drábek, commented: "It is sad that the first programs had been signed by the Czech government no sooner than 10 months after the start of the new state budget period. The pessimistic estimates claiming that prolonged disputes on the domestic political scene would cause post-

Figure IV.4.1 Cluster Incidence in the Czech Republic



Source: Ministry of Industry and Trade

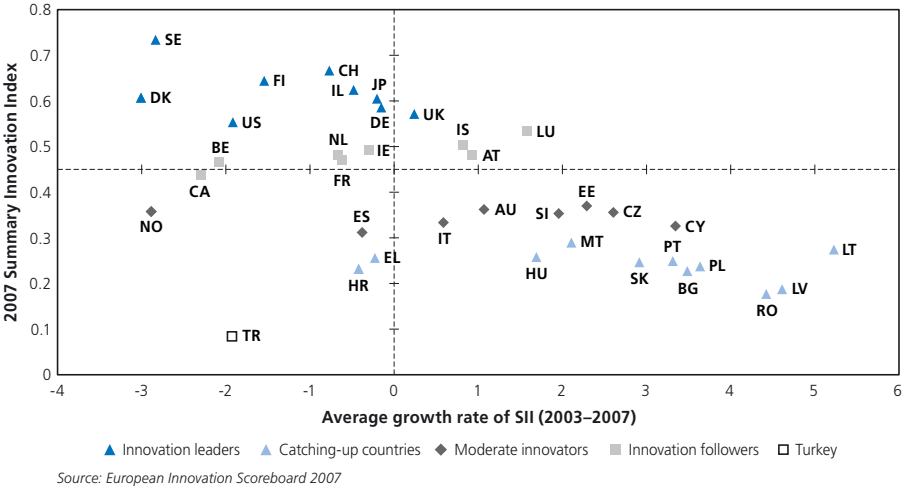
poned access to the EU funds thus proved to be justified."

The Czech Republic is in fact one of the EU member countries with the lowest number of approved operation programs. It remains an open question how much of the potential 150 billion EUR reserved for EU support of innovation and competitiveness over 2007–2013 will ultimately be applied for. Needless to say, time is running out.

On top of this rather disappointing performance at the international level, Czech claimants face a number of additional difficulties that make the usefulness of EU funding and the real impact of government proclamations doubtful. Recent efforts by the Ministry of Industry and Trade towards greater simplicity and transparency of EU-funded projects translate only slowly into a more positive attitude among potential applicants. While the removal of duplicate mechanisms, speeding up of application procedures, overall reduction in bureaucracy supported by the increased provision of an ex-ante financing signal a more user-friendly interface with the state, many entrepreneurs still complain about excessive administrative load, a discouraging complexity regarding available assistance and funding schemes and allocation inefficiencies in the educational system and applied science. Industrial leaders often look across the borders where, such as in Germany, laws strengthen linkages between university research and the private sector or where special foundations target small and medium enterprises and help them participate in joint cluster projects.

Like their German counterparts, Czech policymakers did succeed in the formal and, to some extent, real implementation of similar mechanisms. A growing number of Czech companies engage in fruitful cooperation with the technical universities in the country. As indicated by Figure IV.4.1, there are several successful clusters and some additional ones are expected in the near future.

Figure IV.4.2 Summary Innovation Index 2007



Source: European Innovation Scoreboard 2007

On the other hand, graduates and R&D output of many universities do not reflect the current needs of the economy. After the dissolution of industry-specific research institutes, the visions of departments competing for research contracts with the private sector failed to materialize. Private sector investments into university equipment and the number of experienced practitioners teaching academic courses still remain relatively modest. The formally introduced laws and regulations that were designed to facilitate public-private cooperation sometimes do not fit the realities of practical, day-to-day cooperation. In a wider perspective, while the government's actions seem to move in the right direction *(see Figure IV.4.2)*, it remains vital to link R&D and innovation policies with reforms in other areas such as education and migration policies. The reform of tertiary education has already been launched and might bring an increased number of qualified workers within a few years. For immediate needs, the government relaxed a number of formal requirements that have discouraged well-trained foreign labor from working in the Czech Republic. Nonetheless, the persistent shortage of specialists in the Czech economy indicates that the scope for policy steps to enhance innovation, R&D and competitiveness is far from being fully exploited.

IV.5 Research and Development

At the beginning of the 21st century, the Czech Republic remained one of the less R&D-intensive economies in the world. As shown in Table IV.5.1, in 2005, the country spent 1.42% of its GDP on R&D. Although this represents an increase relative to 2000, the relative spending is still well below the level of EU15 and the technological super-

Table IV.5.1 Size and Structure of R&D Expenditures

	R&D expenditures as a percentage of GDP		Percentage of expenditures financed by industry		Percentage of expenditures financed by government	
	2000	2005	2000	2005	2000	2005
Czech Republic	**1.35**	**1.42**	**51.2**	**54.1**	**44.5**	**40.1**
Hungary	0.81	0.94	37.8	39.5	49.5	49.4
Poland	0.70	0.57	32.3	33.4	63.4	57.7
Slovakia	0.69	0.51	54.4	36.6	42.6	57.0
EU 15	1.88	1.86	56.2	54.1	34.5	35.0
Germany	2.48	2.46	66.0	66.6	31.4	30.5
Japan	2.98	3.33	72.4	76.1	19.6	16.8
Switzerland	2.64	2.93	69.0	69.7	23.2	22.7
United States	2.70	2.62	68.2	64.0	27.3	30.4

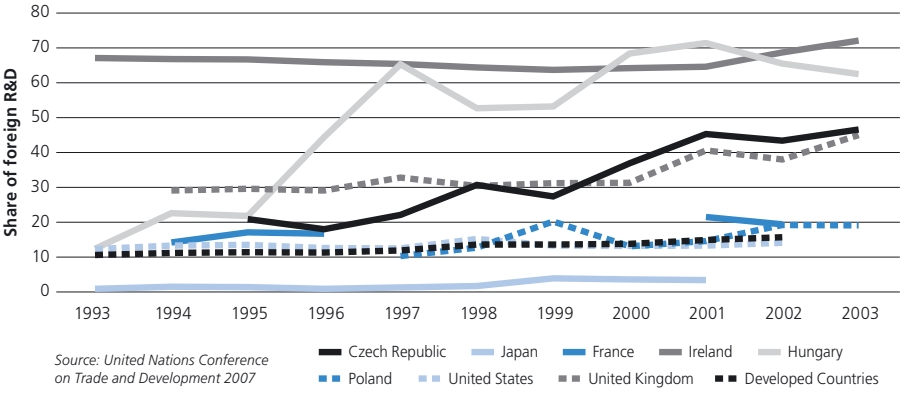
Source: OECD

powers such as Germany, Japan, Switzerland, and the U.S. (*see Table IV.5.1*). However, compared to other countries in the Visegrad group at the similar level of development and which share a similar historical background, the Czech Republic spends significantly more relative to its GDP than Poland, Hungary, and Slovakia, all of which spend less than 1%.

Table IV.5.1 also shows that the fraction of R&D expenditures financed by industry has recorded a mild increase and the fraction financed by the government a mild decrease between 2000 and 2005. The former figure, which stands at 54.1% in 2005, is in fact at the EU15 average. The rest of the budget comes from foreign and non-profit sources.

It is perhaps not surprising that recent R&D surveys suggest that most new R&D activity in private enterprises occurs in those owned by foreign entities *(see Figure IV.5.1)*. Given their poor technological state after the fall of communism, much innovative effort by

Figure IV.5.1 R&D Expenditure by Foreign Affiliates in Selected Economies, 1993–2003 (% of business R&D)



Source: United Nations Conference on Trade and Development 2007

domestic companies in the last 15 years has focused on improving their productivity more cheaply by simply imitating the existing technologies used in the developed countries. This is also reflected in a relatively low number of researchers and research expenditures financed by private industry in comparison to the technological superpowers *(see Table IV.5.1 and Table IV.5.3)*. The process of imitation is likely to continue for some time, and, as a result, the number of R&D jobs will approach the levels of the countries at the technology frontier only gradually.

One possible means of speeding up this process is to market the country more actively as an attractive investment target not only for manufacturing and services, but for R&D activities as well. Recent examples of Microsoft and SAP setting up their regional technological centers in Prague suggest that large multinationals do indeed perceive the local labor market to be at least partially capable of providing workers with the right skills for the job. However, further expansion of such employment has to go hand-in-hand with upgrading the teaching and research capacity of the Czech higher education system in order to increase the number of high-quality graduates capable of filling these jobs. In terms of quantity of these graduates, Table IV.5.2 shows that the number of tertiary graduates in science and technology per 1000 of population aged 20–29 years has grown from 5.5 in 2000 to 8.2 in 2005. Despite this increase, though, it still lags behind the EU25 average and the technological superpowers. This table adjusts neither for quality differences in education, nor for net migration flows of the educated workforce out of the region. As long as R&D and high-tech sector wage differentials between the Czech Republic, the U.S., and Western Europe remain substantial, highly talented individuals will likely find employment out of the country.

Taking a snapshot of those who are currently employed in R&D, Table IV.5.3 shows that the Czech Republic has seen a significant increase from 2.9 researchers per 1000 employed workers in 2002 to 4.8 in 2005. Figure IV.5.2 shows that this growth

Table IV.5.2 Graduates of Tertiary Education in Science and Technology (per 1,000 of population aged 20–29 years)

	2000	2005
Czech Republic	**5.5**	**8.2**
Hungary	4.5	5.1
Poland	6.6	11.1
Slovakia	5.3	10.2
EU 25	10.6	13.2
Germany	8.2	9.7
Japan	12.6	13.7
Switzerland	15.1[a]	16.1
United States	9.7	10.6

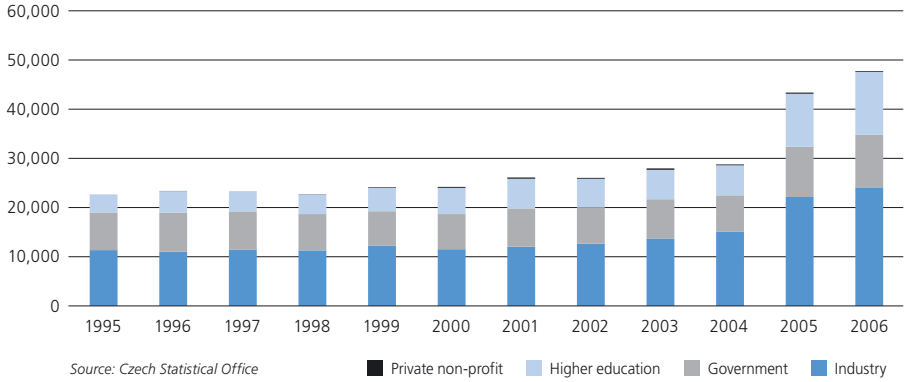
Note: a) Data for 2002
Source: Eurostat

Table IV.5.3 Number of Researchers per 1000 Employed (full-time equivalent)

	2000	2005
Czech Republic	**2.9[a]**	**4.8**
Hungary	3.7	4.1
Poland	3.7	4.7
Slovakia	4.7	5.2
EU 15	5.8	6.2
Germany	6.7	7.0
Japan	9.7	11.0
Switzerland	6.3	6.1
United States	9.6	9.7

Note: a) Data for 2002
Source: OECD

Figure IV.5.2 Number of Researchers in the Czech Republic (in full-time equivalent) by Sector, 1995–2006



Source: Czech Statistical Office

has been driven by increases in R&D employment in industry as well as higher education, with few changes in government and non-profit R&D employment. However, even at this level, R&D employment significantly lags behind both the EU15 and the technological superpowers. This reflects the low R&D intensity of the old traditional industries as well as the manufacturing-only character of many of the new greenfield foreign investment projects.

Moving from R&D inputs to output, Table IV.5.4 lists the number of patent applications to the European Patent Office (EPO) as well as triadic patent applications (i.e., simultaneously applying to the EPO, the U.S. Patent and Trademark Office, and the Japan Patent Office), per million inhabitants. A similar pattern applies again. Although the number of both types of patent applications originating from the Czech Republic has increased by substantially between 2000 and 2005, it is a

Table IV.5.4 Number of Patent Applications per Million Inhabitants

	Triadic patent applications		Applications to the EPO	
	2000	2005	2000	2005
Czech Republic	**0.9**	**1.5**	**6.4**	**10.7**
Hungary	3.3	3.7	11.6	12.5
Poland	0.3	0.3	1.1	3.5
Slovakia	0.7	0.6	1.9	4.1
EU 15	36.4	37.0	133.8	134.1
Germany	70.3	76.0	267.4	266.3
Japan	92.6	119.3	165.5	173.1
Switzerland	104.8	107.7	371.1	378.7
United States	54.4	55.2	107.4	108.2

Source: OECD

tiny fraction of the analogous figures for the EU15 and the technological superpowers. Furthermore, comparing the relative gap in the number of R&D workers and the number of patent applications reveals that R&D is much less productive in the Czech Republic relative to these other countries. Although these figures do not reflect the quality of the applications and their success rate or the quantity and quality of other inputs such as physical equipment, they are very suggestive of the comparative state of research output and productivity in the Czech Republic.

Reform of R&D Funding in the Public Sector

Recently, the efficiency of the Czech R&D public funding scheme has been increasingly criticized. After more than three years of preparations, in March 2008 the Czech government approved a reform of the way the state finances R&D output. The reform still needs to be approved by Parliament and to materialize in new legislation; its shape is becoming increasingly clear, however. It has the strong political backing of Prime Minister Topolánek, who made the reform one of his key agendas. Although the public universities, the Academy of Sciences, and the Ministries that currently spend substantial R&D funds (i.e., health, industry, or defence) play an important role in shaping the reform, the decisive role is retained by the relatively independent government's Research and Development Council.

The reform will surely affect the way basic science as well as applied innovative work are carried out in the Czech Republic, where it will redirect more than 20 billion CZK of local public funds annually spent on R&D activities (additional major funding comes through the EU). The current system of R&D financing channels funds through a set of over 20 so-called "providers," who then finance "their own" R&D institutions and projects. The Ministry of Education thus provides funding to support research and development at Czech public universities, the Academy of Sciences finances its research institutes, and various ministries use public R&D funding to cover the activities of their own research institutes, but also to fund a range of R&D subsidy schemes and programs. Each provider uses a different evaluation scheme to allocate funds to specific research institutions and the quality of some of these peer-based evaluations has been increasingly questioned. A vast majority of the funded research projects are deemed to be of world-class scientific quality, even though many such projects end with no tangible scientific output.

The reform, which is likely to be implemented in 2010, aims to dramatically lower the number of providers and establish a simple disciplining device to ensure that providers do improve the quality of their evaluation schemes, provide more funding for higher-quality projects, and cut down or eliminate wasteful spending. The proposed new scheme is partly based on bibliometric indicators of publication output, similar to many research funding schemes recently introduced throughout Western Europe, but it is unusual in that it simultaneously covers basic and applied innovative output.

In the future, about half of all public funding in the Czech R&D sector is to be provided in reward for past measured output (of research institutions) and the other half is to be directed through two main grant agencies towards promised research output. The list of providers will continue to include the Academy of Sciences and the Ministry of Education, which will continue to finance

(past) institutional research output, but the majority of other types of funding is to be directed to the existing Grant Agency of the Czech Republic, which will provide project-based (grant) funding in basic science, and the Technological Agency of the Czech Republic, an institution yet to be established, which is expected to finance all applied projects.

The government will no longer (annually) increase the allocated available institutional funding across all providers in a balanced fashion, but will send more of the public funds the way of the more productive provider, i.e., the provider whose research institutions collectively generate more research output. The amount of generated output is to be determined using a simple funding formula, which allocates specified fixed "R&D output points" to various types of reported output. For instance, high-quality publications in journals with an impact factor are to be worth more points than low-quality non-impact publications. There is a specific number of points prescribed for each book published in a respectable publishing house (the meaning of 'respectable' is still to be determined) and, similarly, fixed point amounts will correspond to each item published in the ISI proceedings of a wide variety of conferences, for each certified software, authorized prototype, etc. Certain fields of basic science, mainly in the humanities, are excluded from this funding formula and will face somewhat different funding criteria.

The proposed funding formula may change for the better the way some of the providers operate in that funded research projects will surely result in reported R&D output now; on the other hand, it is also likely to lead to several undesired consequences. Specifically, it may lead to over-production of those types of research output that have a high ratio of points relative to the amount of effort and scientific quality that goes into generating such output. And these types of output are unlikely to correspond to the high-quality basic science that the reform aims for. Similarly, it may lead to artificial applied innovations that are easy to get reported (approved, financed) in the database of R&D output, but may be of little practical use in the real world. It remains to be seen whether the current political support will remain in place and will allow the reformers to finalize the details and put the new system in place.

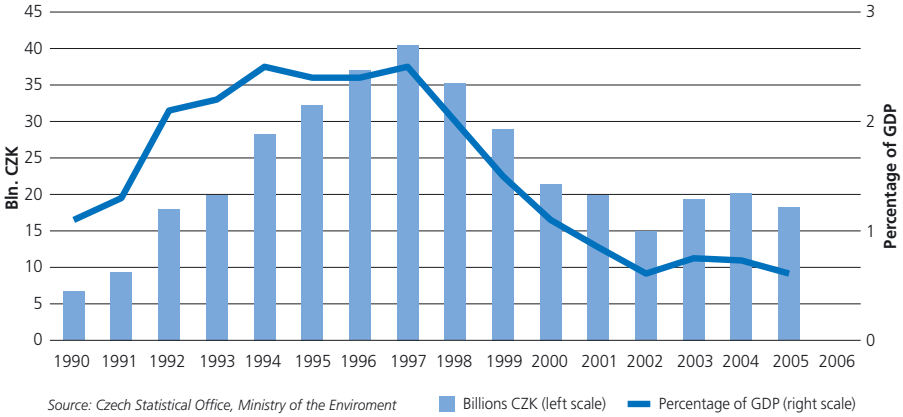
IV.6 Environment

Significant improvements in environmental protection took place during the first decade of pro-market reforms in the 1990s. Not only are the new legal standards comparable to those of the EU15, but large reductions in emissions and significant improvements in environmental quality can be noticed in everyday life.

The primary focus was on air quality; both stationary as well as mobile polluting sources were targeted. All stationary air polluters were expected to meet the new criteria on the eve of the new millennium. The unleaded fuel share in gasoline consumption rose from a mere 1% in 1990 to 81% in 2000. From 2001, the import and sale of leaded gasoline has been prohibited.

The 1990s were also characterized by huge investments in environmental protection. Since 2001 the environmental protec-

Figure IV.6.1 Investment in Environmental Protection

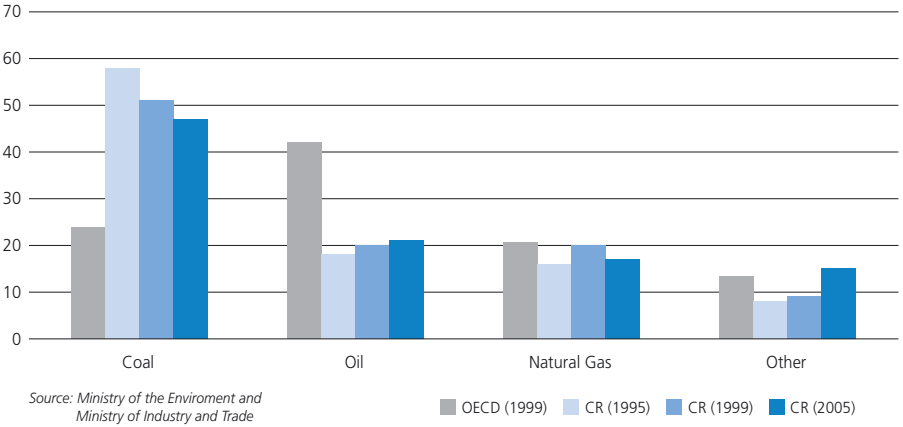


Source: Czech Statistical Office, Ministry of the Enviroment

tion investments declined to about one third of the transition level and the focus has changed as well.

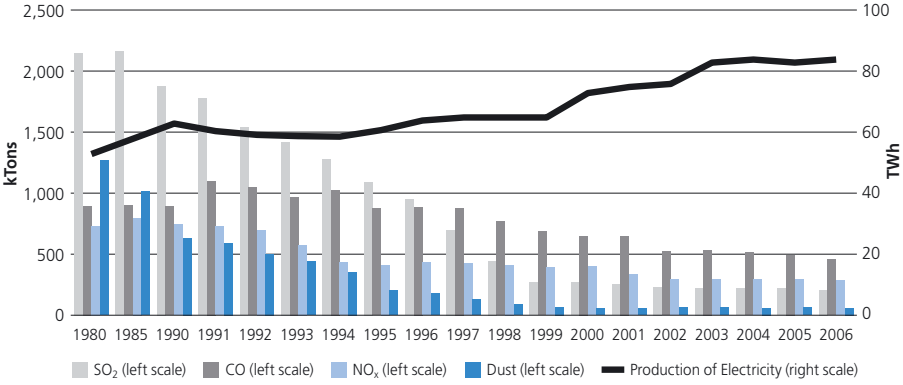
During the mid-1990s, firms faced new environmental standards and had to modify their technologies. New standards were enforced and the temporarily granted exceptions gradually expired. Major air polluters of sulfur and carbon dioxides (e.g., power plants) had a temporary exemption from the emission limits until January 1999, but from that time on all major polluters have been expected to utilize new technologies. Indeed, sulfur dioxide emissions dropped to one eighth of the level of the 1980s and even dust emissions were reduced twenty-fold. The newly finished nuclear plant near Temelín is in full operation (now a process leading to tripling its current capacity has been started and is under review). The current share of

Figure IV.6.2 Primary Energy Resources



Source: Ministry of the Enviroment and Ministry of Industry and Trade

Figure IV.6.3 Waste and Electricity Production (kilotons)



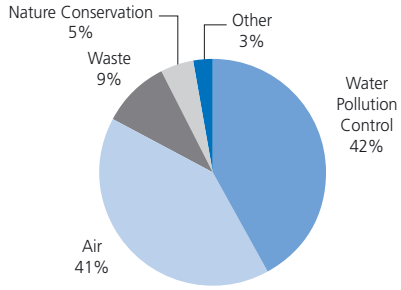
Source: Environmental Yearbook (various issues), Ministry of Industry and Trade, Czech Statistical Office

nuclear and renewable resources on primary energy resources doubled in the period from 1995 to 2005.

These changes can be documented both in macroeconomic figures and in expenditures of the investment protection fund. While in 2001 the expenditures of the fund to protect air and water quality were approximately equal, in 2006 the water protection expenditures were four times that of air. The current focus on water treatment reflects the need to build numerous water treatment facilities, mainly in smaller rural residential areas. Once this task is finished, waste management is likely to become the number one priority.

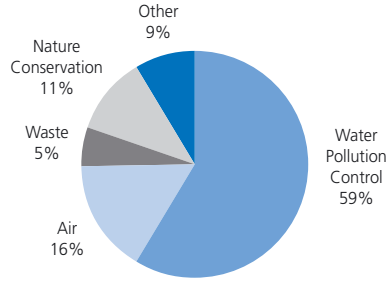
Finally, a major legislative achievement of transition and EU accession was the introduction of the Environmental Impact Assessment (EIA) of all major construction and other activities affecting the environment. The original law of 1992 was replaced with a new one in 2000, which, as amended, reflects current EU practice and requirements. It is a systematic process by which the impact of a planned

Figure IV.6.4
Total Expenses Structure of Enviromental Fund 2001



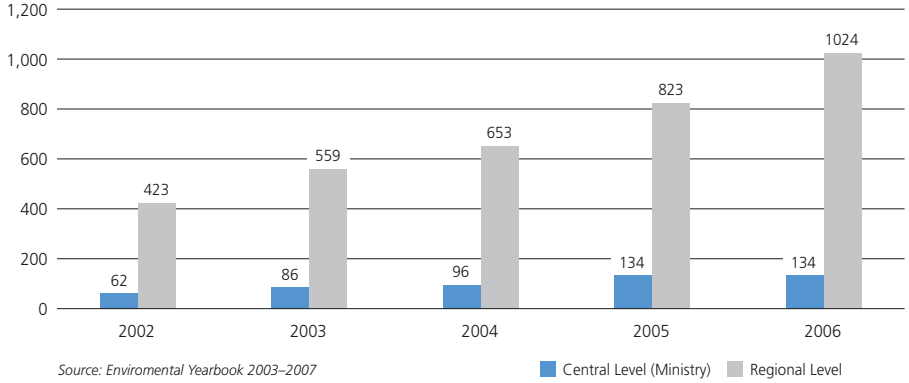
Source: Environmental Fund

Figure IV.6.5
Total Expenses Structure of Enviromental Fund 2006



Source: Environmental Fund

Figure IV.6.6 Enviromental Impact/Strategic Enviromental Assessment Cases

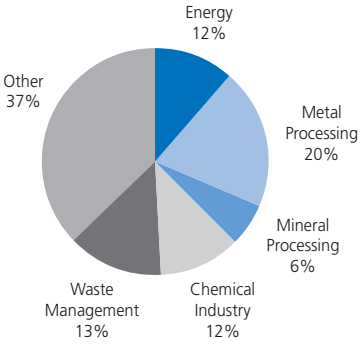


Source: Enviromental Yearbook 2003–2007

activity on the environment is identified and assessed using both qualitative and quantitative assessment techniques. The EIA process is an important element in the system of preventive environmental protection instruments. The outcome of an EIA usually provides the means of conveying to decision makers the nature, magnitude, and significance of the proposed activity's environmental impact.

Similarly, EU directive 96/61/EC dealing with Integrated Pollution and Prevention Control (IPPC) was implemented with several acts in 2002–2006. The ultimate goal is to limit the environmental impact of specific industrial activities by requiring the use of the best available technologies.

Figure IV.6.7 Integrated Pollution and Prevention Control by Industries in 2006



Source: Enviromental Yearbook 2007

Pollution Control in a Transition Economy: Do Firms Face Economies and/or Diseconomies of Scale?

Based on: Earnhart, Dietrich and Lubomír Lízal, 2006. "Production and Sectoral Differences in a Transition Economy." Comparative Economic Studies*, Palgrave Macmillan Journals, vol. 48(4), pages 662–681.*

Recent economic studies have empirically examined factors driving corporate environmental performance, generally measured by pollutant emissions, in mature market economies and transition economies. While these studies include production as a control

variable in their empirical analysis, they do not analyze the relationship between pollution and production.

This study closely examines the emission-production relationship by analyzing firm-level environmental performance, as measured by air pollutant emissions, in the Czech Republic during the years 1993 to 1998. In particular, the study assesses whether Czech firms in this period faced economies and/or diseconomies of scale with respect to pollution control by evaluating the effects of production on the level of air pollution emitted by large stationary sources. By examining intra-firm variation in emissions and production, the analysis allows the intrinsic ability to control air pollution to vary across individual firms. By estimating a separate set of production-related coefficients for each individual sector, the analysis permits economies /diseconomies of scale to differ across sectors. Just as important, the analysis allows these scale effects to vary over time, which seems critical in the context of a transition economy.

As with several countries in Central and Eastern Europe, the context of the Czech transition economy is in particular interesting for an assessment of pollution control. The Czech Republic had a substantially degraded environment in the 1990s; in particular, poor ambient air quality and air pollution were large environmental problems. The Czech government also needed to reduce industrial air pollutant emissions in order to qualify for membership in the EU. In response to these factors, the country's government tightened the air protection regulation between 1991 and 1998. Consistent with the escalating protection policies, investment in environmental protection as a percent of GDP rose dramatically after 1991 and returned to pre-transition levels by 2000. In keeping with this increased investment, throughout this same period aggregate air pollutant emissions declined dramatically.

Our results indicate that as production rises, the average Czech firm enjoys economies of scale in pollution in general. However, in at least one year, the average Czech firm faces a mixture of economies and diseconomies of scale depending on the production level. In one exceptional year, the average Czech firm encounters no appreciable relationship between emissions and production. These initial results stem from estimation that incorporates firm-specific effects but does not distinguish production effects by sector. Given the range of these initial year-specific conclusions and their progression over time, the sector-specific results seem more illuminating. Certainly, the results indicate that the production scale effects differ dramatically across sectors. For example, both the metals sector and the energy sector enjoy economies of scale at lower production levels, while facing diseconomies of scale at higher production levels. In contrast, the chemicals sector encounters neither economies nor diseconomies of scale with an apparent proportional relationship between emissions and production. Other Czech sectors, including relatively "clean" sectors (e.g., food and beverages), face the challenge of no meaningful connection between emissions and production, which represents a blessing or curse depending on the (approximately) fixed level of emissions (conditional on a fixed physical capacity and production technology). We also discuss policy implications of these findings.

IV.7 Czech Republic and International Competitiveness

According to the recent *'World Competitiveness Yearbook 2008'* published by the Institute for Management Development (IMD) in Lausanne, the Czech Republic has moved up 4 places compared to the previous year, currently listed as the 28th most competitive among the 55 ranked countries. The competitiveness ladder has not changed the first three places: The U.S. kept the lead, followed by Singapore and Hong Kong. Switzerland moved up to the fourth most competitive economy, according to the ranking.

Estonia, occupying 23rd position between Belgium and Japan, was the leader among the post-communist countries. On the other hand, the worst post-communist result was recorded by Ukraine, on 54th place. The Czech Republic was the second among the post-communist countries, followed closely by Slovakia in 30th place, which also improved its ranking by 4 places compared to the previous year. Slovenia as well as Poland improved by eight places, and are ranked 32nd and 44th, respectively. The biggest fall, again eight places, was recorded by Ukraine. Lithuania fell five places to 36th place, while Hungary dropped three positions to 38th place. Communist China ended up in 17th place.

The Czech Republic performed well in terms of economic criteria; it ranked first in this respect among the post-communist countries and 20th among all countries. The biggest economic threat and weak export prospects stemmed from the ever-appreciating Czech currency. The strong side of the Czech economy was its infrastructure development, where it ranked 24th. The infrastructure component also reflected the dichotomy between physical infrastructures, like a very high penetration of cell phones or urbanization, and acquired and available soft-skills, which put Czech Republic in 48th place in the interest of young people in science. The Czech Republic also had a very low share of tertiary educated people and faced a lack of engineers. The transfer of scientific results into practice was problematic and the total expenditures on tertiary education stayed low.

Less favorable, compared to the previous criteria, was the evaluation of the Czech Republic in terms of government and business efficiency, where it ranked 33rd and 34th, respectively. Although the business sector still benefited from relatively lower labor costs, the work of management boards and inefficiency of the stock market was viewed rather negatively. The Czech Republic was at the bottom of the pack in terms of these criteria. As far as governmental efficiency is concerned, the openness of the economy was highly valued and foreign investors were not discriminated with respect to state-owned firms.

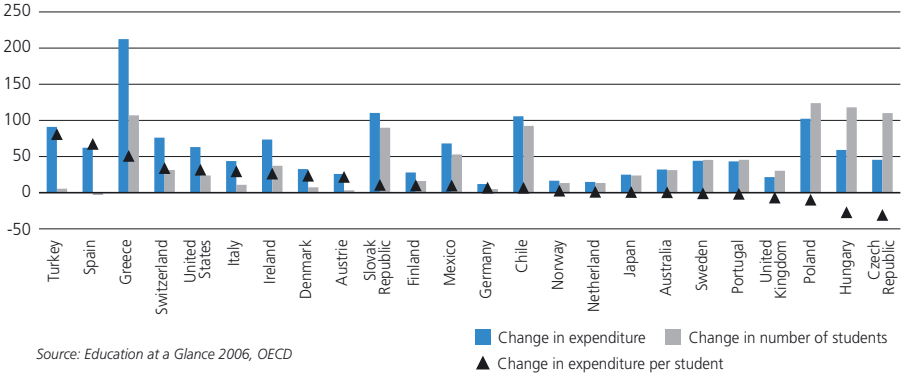
The appreciating currency naturally hindered enterprises' competitiveness. A comparison with 2007 also revealed that there was a negative trend in areas associated with a high value-added, and the lack of qualified skilled labor was dealt with neither by upgrading the higher education system, nor with changes in immigration policy. These problems started to affect the labor market. Recent public sector reforms have not affected the current rankings yet. The long-term perspective suggests that the Czech Republic should focus on human capital, but governmental policies have not done so yet.

Full ranking results are available at *http://www.imd.ch/wcc*. CERGE-EI is a partner institute for the World Competitiveness Yearbook in the Czech Republic.

V. LABOR MARKET

V.1 Human Capital

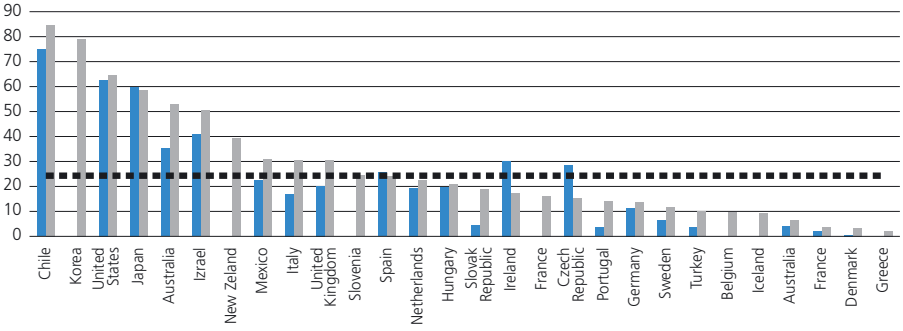
Figure V.1.1 Changes in Expenditure on Educational Institutions (1995–2004, constant prices, % changes)



Source: Education at a Glance 2006, OECD

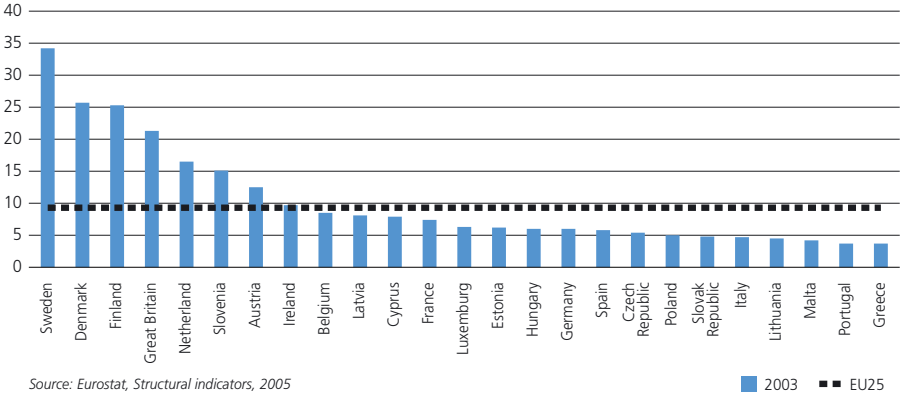
The Czech Republic is similar to Austria or Germany in that it boasts high upper secondary school completion rates but low albeit rising tertiary attainment. As of 2004, only 12% of the Czech population aged 25 to 64 had a university degree, compared to an OECD average of 25%. The culprit for both facts is the traditionally large apprenticeship system. This system, however, has been divorced from enterprises following the

Figure V.1.2 Share (%) of Private Sources on All Axpenditures in Tertiary Education



Source: Education at a glance, 2006, OECD

Figure V.1.3 Share (%) of Population (aged 25–64) Participating in Life-long Learning (in 2003)



Source: Eurostat, Structural indicators, 2005

breakdown of communism, and it consistently fails to adjust to the changing labor market needs, in contrast to Germany.

While private tuition-charging secondary schools provide about one fifth of the total of secondary education, tuition-free public universities continue to dominate the production of tertiary education. The public university system has traditionally been heavily oversubscribed; however, its dramatic expansion combined with the shrinking size of student cohorts makes it increasingly accessible.

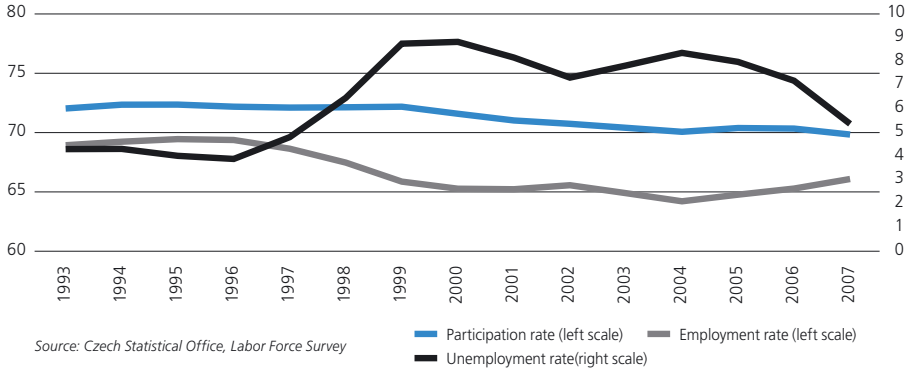
Finally, participation in life-long learning remains very low in the Czech Republic compared to the EU15 economies, especially among the less educated and those outside the capital city of Prague.

V.2 Employment, Unemployment, and Wages

Thanks to continued strong economic growth, Czech employment has been on a steady rise during the last year as unemployment declined sharply. Fourth-quarter 2007 employment data from the Labor Force Survey (LFS) show that employment increased by over 100,000 in a year-to-year comparison, the highest increase in 11 years. The Czech employment rate grew annually by 0.9 of a percentage point and reached the level of 66.5% of the population aged 15–65. The rate increase was twice as fast for men as for women.

As a result of the strong growth, local labor shortages remained extensive until late 2008 when the global financial crisis led to a drop in demand and first mass layoffs of primarily temp-agency workers, with minor consequences for unemployment rates until the end of 2008. Earlier in 2008, about 40% of local enterprises reported a lack of workers, including programmers or bricklayers. These shortages led to an inflow of foreign workers, the number of which probably exceeded 300,000 in 2007. Of this, 240,000 were in official employment in 2007, a rise of 28%

Figure V.2.1 Labor Market Indicators: Participation, Employment and Unemployment Rate (15–65 age, year averages in %)

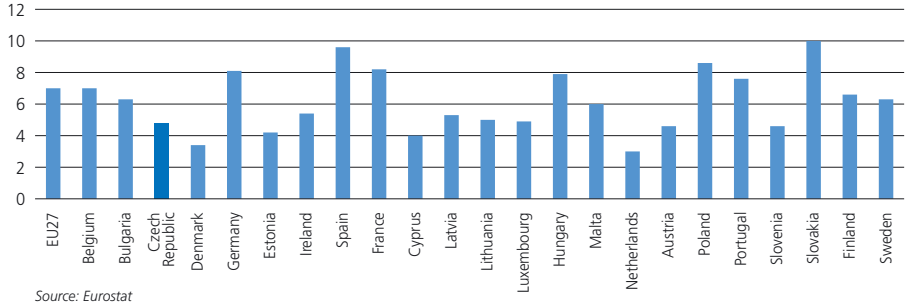


Source: Czech Statistical Office, Labor Force Survey

compared to 2006. Over 100,000 of the foreign workers came from Slovakia and over 60,000 from Ukraine. The number of Bulgarian and Romanian workers rose as well, thanks to the absence of work permit requirements in 2007, but it still remains low at 5,000 and 4,000, respectively. The largest increase in foreign-worker employment has been recorded for plant and machine operators and workers in elementary occupations. It may be that the 2008 tax benefit reforms, which make work more attractive relative to inactivity, will boost the local supply of low-skilled workers.

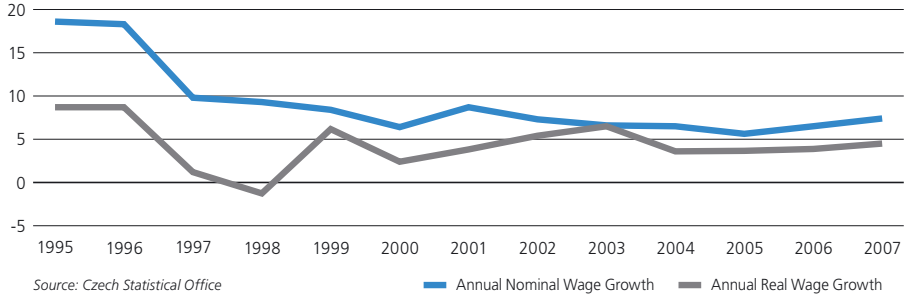
There has also been a small rise in inactivity rates, which, however, mainly reflects increasing tertiary school enrolment of young people (see the feature article on the participation of youth), while the economic activity of pensioners is actually increasing. Unemployment rates of all types have declined rapidly in recent months. The general (ILO) unemployment rate dropped by 1.7 percentage points year-on-year in the last quarter of 2007; it reached 4.9%, the lowest unemployment level in recent history and a level much below the EU average. (The registered unemployment rate reached 6.0% in December 2007.)

Figure V.2.2 Unemployment Rates in the European Union (2008, first quarter)



Source: Eurostat

Figure V.2.3 Wage Growth Rates



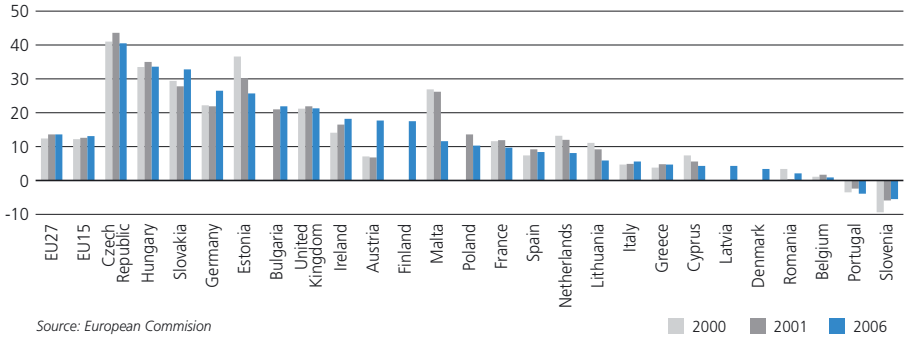
Source: Czech Statistical Office

Importantly, there has also been some decline in the number of long-term unemployed, but their share remains close to 50%, which is high by EU comparison. Another aggregate record was recently set in the number of registered vacancies (146,000 in January 2008). In some districts, there are more vacancies than unemployed people. More importantly, there is a rising share of vacancies for workers with low skill levels.

Given these favorable employment developments, the wage growth has been reasonable so far. Annual nominal wage growth stood at 6.4% in 2006 and was close to 8% in 2007. This is still not too far off the pace of productivity growth, thanks in part to the presence of foreign workers and a slower growth of wages in the public sector. Interestingly, wages grew fastest for low-skilled occupations, including laborers. Given the rise in inflation in early 2008 and the persistent labor shortages on the market, however, more wage growth pressure is to be expected during 2008.

Shifting attention to the Czech employment structure viewed from the EU perspective, it is clear that manufacturing is responsible for an unusually high share of employment in the Czech Republic (about 10 percentage points above EU15 and EU27 averages) and that the incidence of part-time employment remains

Figure V.2.4 Employment Impact of Parenthood for Women (difference in percentage points in employment rates without a presence of any children and with presence of a child aged 0–6)



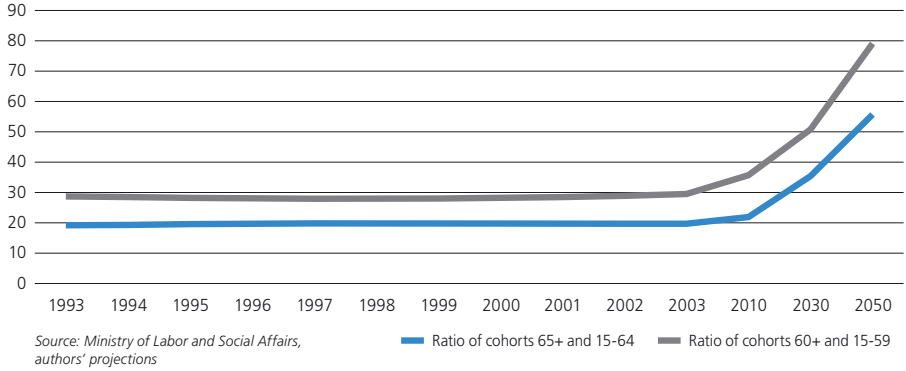
Source: European Commision

quite low in the Czech Republic, thanks in part to unusually high full-time employment rates of younger Czech women (and their low fertility). Only 5% of Czech women work on part-time contracts compared to almost 26% in the EU27. (The relatively high Czech gender pay gap may thus be explained to a considerable extent by the high employment rates of low-educated Czech female workers.) In fact, the Czech employment rate gap between women with and without young children is the highest in the EU, due to the combination of high participation of women without children and low participation of women with children. This is perhaps not surprising given that only one third of kindergartens admit all applicants, while about half of public kindergartens admit at most 40% of applicants aged 3–5. The childcare situation is even more difficult for children under 3 *(see Section I.2 for further discussion)*.

V.3 Labor Market Policy

The recent fiscal reform *(see Section VI.1 for further details)* affected several dimensions of the labor market policy (see the box with the main features listed). Apart from the changes in personal and corporate income taxes, the reform expanded the so-called child tax credits to working parents and allowed parents to choose different combinations of entitlement length and benefit level for parental allowances (but it kept the quantitatively more important spouse tax credit). Further, the reform lowered welfare support to inactive long-term unemployed. It remains to be seen whether these changes will have much effect on the Czech labor market. The reforms related to parental leaves may not be effective in allowing women to return to work sooner unless they are coupled with generous support for public kindergartens. Similarly, it is not clear whether the lower support level for long-term unemployed will be successful in activating them in the absence of effective targeted retraining and other active policy programs. Clearly, the reform

Figure V.3.1 Dependency Ratio (% of older cohorts in the Czech population aged 15 and over)



Source: Ministry of Labor and Social Affairs, authors' projections

lowered average effective tax rates for both low and high income groups (thanks to tax credits and housing allowances for the former and thanks to a cap on social security and the flat rate for the latter group), which may increase the participation of low-income workers.

A gigantic unsolved issue, which will affect the whole country in the mid-to-long term, is the lack of any fundamental reform of the pension system *(see Section VI.2 for more details)*, despite the dramatic ageing of the Czech population. Given that multi-party negotiations bore no fruit, the government decided in 2007 to unilaterally introduce important parametric changes in the PAYG system. Recently, the government pushed through a parametric reform of the existing system that would gradually increase the statutory retirement age up to 65 (in 2030) and increase the entitlement contribution period from 25 to 35 years (excluding any years of higher education studies). We note that pension reform ought to be considered jointly with a thorough reform of the closely related system of disability insurance. The share of partially or fully disabled pensioners in the population is already extraordinarily high; it increased recently in districts with high unemployment when more stringent conditions were introduced for the unemployment registry.

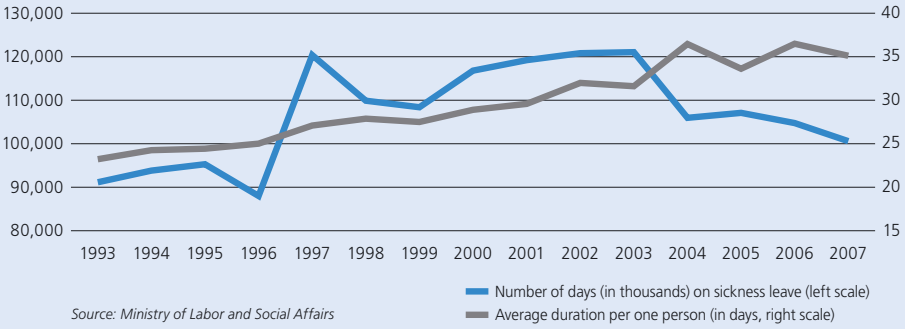
The situation of the Roma minority represents the key social exclusion issue in the Czech Republic and it continues to receive little effective attention from policy makers. The situation of the Roma minority has remained largely unchanged, though a Ministry for Minorities and Human Rights has been established and EU money is flowing into special programs for disadvantaged people including the Roma minority.

The Ministry of Labor and Social Affairs is working on two initiatives in the area of immigration policy. First, it intends to include undeclared work into criminal acts such that much stricter punishments would apply to employers of foreign workers without work permits. Second, it is preparing a much needed system of green cards for foreigners. The new scheme, to be launched later in 2009, should simplify job search for foreign workers who currently have to find a Czech job while being abroad and wait for months for approval. It should also provide foreign workers and their families with a balanced amount of welfare and social security while in the country. It remains to be seen whether the initial proposals materialize into effective and skill-biased immigration policy.

Sickness Insurance Scheme

Despite improving health care and a strong labor demand, the Czech Republic consistently scores (together with Slovakia and Poland) among the EU economies with the highest number of sick-leave days per year and employee. The share of short sickness periods (lasting several days) is particularly high and growing in the Czech Republic and is especially prevalent among employees of small firms. Both cross-country research and anecdotal evidence from the Czech Republic suggest that the extent of abuse of short sickness leaves is significant and is related to benefits generosity. The reason medical doctors may be willing to certify these

Figure V.3.2 Sickness Leave



Source: Ministry of Labor and Social Affairs

short sick leaves is that general practitioners (GPs) receive fees for serving and keeping patients (patients register with a general practitioner) while workers are free to switch to another doctor if the current one refuses to 'cooperate'.

In response to this problem, several important changes to the sickness insurance system were introduced within the Act on the Stabilisation of Public Finances effective in January 2008. The Act curtails benefits levels. Most significantly, as of January 2008, the benefits no longer provide during the first three days of sickness. The goal of this policy is to lower incentives for abusing the sickness scheme for both workers and employers, which would then reduce sickness insurance expenditures.

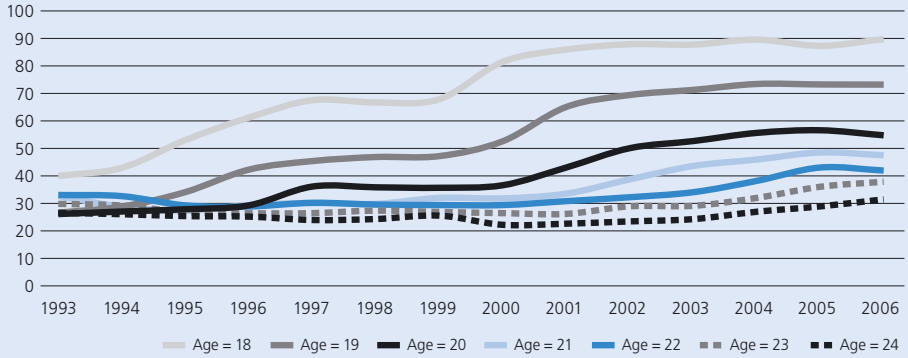
The policy is apparently successful in this regard. Comparing the 1st quarter of 2008 to one year earlier, the expenditure on sickness benefits declined by 1.5 billion CZK as the number of sick-leave days declined by over 11%. Sick leave incidence declined particularly dramatically in small firms (covering about 1 million employees). The number of sick-leave absences shorter than 1 week in small firms declined by one half. (Of course, one needs to control for other effects such as the mild winter favorable for construction work, the relatively low incidence of flu this year, and the high level of labor demand. Nevertheless, it seems reasonable to accept that the reduction in short-term absenteeism due to the introduction of the waiting period has been substantial.)

Despite its success, the policy was challenged at the Constitutional Court. In late April 2008, the Court repealed the part of the legislation that denied employees benefits during the first three days of sickness, arguing that it conflicts with the insurance principle. Since the Court stopped short of stipulating the appropriate level of benefits, the government quickly responded. It decided to temporarily lower sick pay to only 25 per cent of the daily base pay for the first three days of sickness as of September 2008. The government's plan is to pass a new Act on Sickness Insurance in the Parliament during the summer of 2008. The new Act, to be put into effect in January 2009, will revert to the position that the first three days of sickness will receive no financial compensation. It is also expected to shift the monitoring and incentive-setting agenda of short-term illnesses from state to employers (i.e., make employers responsible for covering sickness benefits for short-term incapacity periods in exchange for lowering the payroll contribution rates).

Increasing Labor Market Inactivity of Youth

In 2000, the activity rate of Czech youth (the share of employed and unemployed in the age group 15–24) was low in comparison with the EU (at 43.9%, it was well below the EU15 average of 47.5%). In the following years, the Czech rate declined further to 31.0% in 2007, while the rate slightly increased in the EU15 to 47.9% (44% within EU27). Our analysis of individual data from the Labor Force Survey reveals that the continued decline in activity rates of Czech youth during the last 15 years was predominantly due to a steady increase in the average duration of formal studies, which in turn was due to a growing number of pupils entering elementary school at the age of seven instead of six, the extension of lower secondary school duration from three to four years, the growing number of students attending 4-year long upper-secondary programs instead of 2–3 year-long apprenticeship programs, and the increased enrolment in tertiary education programs.

Figure V.3.3 Participation Rates in Age Cohorts 18–24



Source: Labor Force Survey, authors' calculations

How does the Czech labor market compare to others in terms of its flexibility and security? Looking at dismissal protection, the OECD ranks the Czech Republic third out of 18 countries in terms of strictness of the conditions for the dismissal of individual employees on regular (permanent) contracts. On the other hand, Czech Employment Protection Legislation is at an intermediate level in an EU-wide comparison when it comes to regulating collective dismissals and is even less strict for temporary contracts.

Only a low share of Czech contracts are temporary in an EU-wide comparison, however, which could be due to the maximum cumulative period of two years for which fixed-term contracts can be signed. Czech costs of dismissing an employee with a long firm-specific tenure are at an intermediate level in an international comparison but,

Table V.3.1 Employment Protection Indices (EPL)[a)]

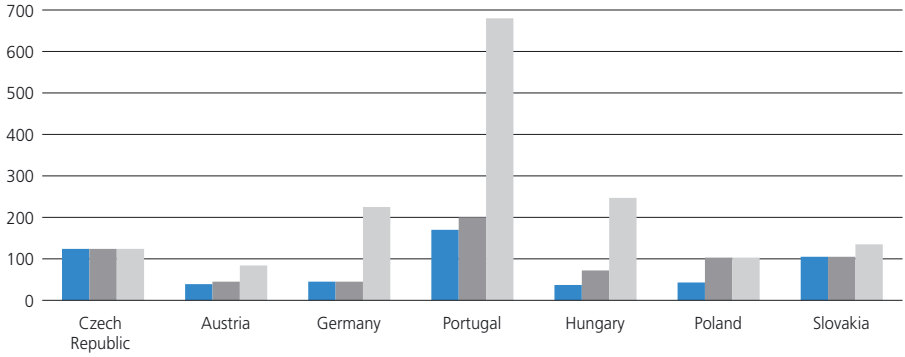
	Permanent employment[b)]		Temporary employment[c)]		Collective dismissals[d)]		Overall index[e)]	
	late 1990s	2007	late 1990s	2007	late 1990s	2007	late 1990s	2007
CZ	3.3	3.2[f)]	0.5	0.5	2.1	2.1	1.9	1.9
AT	2.9	2.4	1.5	1.5	3.3	3.3	2.4	2.2
DE	2.7	2.7	2.3	1.8	3.5	3.8	2.6	2.5
PT	4.3	4.3	3.0	2.8	3.6	3.6	3.7	3.5
HU	1.9	1.9	0.6	1.1	2.9	2.9	1.5	1.7
PL	2.2	2.2	0.8	1.3	4.1	4.1	1.9	2.1
SK	3.6	3.5	1.1	0.4	3.3	2.5	2.5	2.0

Notes:
a) The indices take values ranging from 1 to 6, a higher value meaning greater employment protection.
b) Protection against individual dismissal
c) Fixed-term contracts, temporary work agencies
d) Relative to individual dismissals
e) Weighted average of indicators of permanent employment, temporary employment and collective dismissals.
f) Change effective from January 2007
Source: OECD, Czech National Bank

surprisingly, these costs do not decline with shorter tenure as is common in most developed countries. The fact that dismissal conditions are not graded according to the duration of employment is a powerful deterrent to hiring new workers when employers face high uncertainty in demand for their output.

Unfortunately, these weaknesses in contractual flexibility were not remedied by the new Labor Code, which became effective in January 2007. In fact, the new Code mainly codified all of the existing amendments and contained little change in the main employment protection provisions (both in terms of OECD and World Bank indicators). On

Figure V.3.4 Costs of Individual Termination of Open-ended



Note: Sum of the number of days of notice, days of severance pay and days of delay to start of notice.
Source: OECD, Czech National Bank

Table V.3.2 Overall Labor Taxation[a)]

	100% of average wage				67% of average wage			
	2000	2004	2005	Change[b)]	2000	2004	2005	Change[b)]
CZ	42.7	43.5	43.8	0.2	41.4	41.9	42.1	0.2
AT	47.3	47.5	47.4	0.1	43.2	43.4	42.5	0.0
DE	53.9	53.3	51.8	-0.3	48.6	47.9	46.7	-0.3
PT	37.3	36.8	36.2	-0.1	33.2	32.4	31.7	-0.2
HU	52.7	51.8	50.5	-0.6	48.5	44.8	42.9	-1.2
PL	43.2	43.3	43.6	0.1	42.2	42.2	42.4	0.1
SK	41.8	42.5	38.3	-0.5	40.6	39.6	35.3	-0.9

Notes:
a) Income tax and social security contributions paid by employees and employers as a percentage of total labour costs. Data for employees (individuals without children) earning 100% (left part of the table) and 67% (right part of the table) of the average wage.
b) Average annual change in percentage points for 2000–2004.
Sources: OECD, Czech National Bank

the other hand, the new Labor Code did strengthen the trade union's position. Trade unions have had much influence over labor market policy formation under the previous Social Democratic governments. The January 2007 Labor Code had to be amended in late 2007; the changes were mainly technical and minor (e.g., allowing for 8-hour workdays for youth or affecting overtime pay practices for managers). Perhaps the most important change for the future is that the Code now allows for a dual system where both trade unions and worker councils coexist. So far, there are very few worker councils in existence, but this may change.

The scale and scope of active labor market policies in the Czech Republic is extraordinarily low; furthermore, it is not integrated into comprehensive activation strategies including job search requirements. On the other hand, the Czech system of social assistance is extensive and successfully alleviates poverty; unfortunately, it also makes the comparison of market wages with the total level of available social benefits work-discouraging, especially for families with children. The reason is a combination of the traditionally high level of labor-income taxation for low-wage earners together with the generous and mostly unconditional level of social transfers (welfare benefits) available. Using net replacement rates to measure the extent to which the combination of taxes and benefits affects the financial gain from work and thereby the motivation for unemployed or inactive persons to enter employment, the incentive to accept employment for the short-term unemployed in the Czech Republic is similar to that observed in other EU countries. However, the financial motivation for seeking jobs among the long-term unemployed has traditionally been weak in the Czech Republic in international comparison, especially for low-income families with children. Hence we observe high Czech long-term unemployment rates. Many of these parameters were changed by the 2008 fiscal reform, which made work more attractive for long-term unemployed. It remains to be seen whether these changes will be successful.

VI. PUBLIC AND NON-PROFIT SECTORS

VI.1 Fiscal Reform

The flat tax revolution spreading throughout Eastern Europe reached the Czech Republic in January 2008 when it became the 13th country in the region with a flat tax rate on personal income. The flat tax was introduced as part of a wider tax reform. Beyond replacing the progressive marginal tax rates ranging from 12 to 32% by a single 15% rate, the personal income tax itself was substantially redesigned. The definition of taxable income now includes the social security and health insurance taxes paid by both employer and employee, which means that the new tax rate on income from employment is equivalent to a 23.5% rate using the old definition of taxable income. The new law also dramatically increased personal income tax credit from 7,200 CZK to 24,840 CZK (with similar increases in credits for children and non-working spouses), such that most workers with average or below-average wages will not pay any income tax at all.

The payroll tax rates (i.e., the social security and health insurance taxes) did not change, but the reform introduced a cap of 84,000 CZK per month such that earnings above the cap will not be subject to the payroll tax. Such caps mitigating the redistributive effects of the social security system are common around the world, but in the Czech Republic they previously applied only to the self-employed. For them, however, the new cap will be twice as high as the current one, and therefore those with annual incomes above 1 million CZK will pay more (as much as 200,000 CZK) in payroll taxes than they do today.

The corporate income tax rate was reduced to 22% and should be further reduced to 20% in 2009 and 19% in 2010. Several exemptions and deductions were eliminated in the personal as well as the corporate income tax. For example, the amount of interest payments that businesses can claim as a deduction was limited to loans not exceeding the firm's own capital by more than six times, and only two times the capital in case of loans between affiliated companies.

The value added tax (VAT) on more basic items like food and housing was raised from 5% to 9%. The VAT remained at 19% for most other items.

Major benefits of the reform should be microeconomic. By broadening the tax bases, cutting the top marginal tax rates, and moving various tax rates closer together, taxpayer compliance is expected to improve. Another positive side effect of the reform may be the attraction of high-skilled workers from abroad. For workers with high earnings the fairly low flat tax and the payroll tax cap will improve the financial rewards of working in the Czech Republic compared to other EU countries.

Macroeconomic impacts of the tax reform are likely to be limited. It will mitigate, but not resolve structural budget deficits, the perennial problem of Czech public finances. During the first half of the early 2000s, a period of a steady growth, the consolidated public

sector deficit varied between 3.7% and 6.8% of GDP. The deficit fell to 1.6% of GDP in 2007 and is expected to be at 1.5% in 2008. While such a deficit safely meets the Maastricht requirement for adoption of the Euro, its reduction has been driven largely by record-high economic growth (6.6% in 2007). The presence of a deficit even during such a strong GDP growth period clearly demonstrates that the deficit is structural in nature and that it can easily rise if the economy slows down, let alone goes into a recession.

A more systematic reform on the expenditure side is needed not only to bring down the structural deficit, but to reduce overall involvement of the government sector in the economy and to reduce the fraction of so-called mandatory expenditures in the budget. The size of government in the Czech Republic is high relative to countries with similar income levels. Taxes (including health insurance and similar de facto taxes) reach 43% of GDP, compared to 36% in Slovakia or 42% in Greece. Only 35% of the expenditures is spent on government consumption and public investment, while transfers, subsidies, and interest make up a majority of the expenditure. That is, about two thirds of the government expenditure is ultimately spent on private consumption. Moreover, 71% of the budget is tied in mandatory expenditures (i.e., expenditures that the government is required to spend by some non-budget legislation such as pensions, welfare payments, entitlement subsidies, etc) and quasi-mandatory expenditures (spending necessary for the basic operations of some government functions such as defense and judiciary). The high share of mandatory expenditures puts a straightjacket on the government's ability to make major expenditure cuts, to allocate more revenue to areas of the public sector where major improvements are clearly needed (police, justice, local public goods), and to co-finance grants from the EU.

The 2008 fiscal reform made some steps in that direction on the expenditure side. The automatic indexation of various welfare payments (but not pensions) was eliminated. This measure may slow down the growth in welfare expenditures provided that politicians do not grant similar increases in a discretionary manner.

Some benefits were cut. For example, the childbirth benefit, given to every mother when a child is born, was reduced by 26% to 13,000 CZK (roughly 55% of the average monthly wage). The eligibility to child support benefits was narrowed to families with lower incomes. Some benefits (e.g., the funeral benefit paid to survivors of every deceased person) were eliminated. According to the government's estimates, these cuts will annually save about 8.5 billion CZK, or 0.67% of the total public sector expenditures.

Main Policy Changes in the Fiscal Reform Package Effective January 1, 2008

The reform transferred some of the tax burden from capital to consumption as it:

(a) introduced a flat personal income tax rate with an unusual tax base, applied to the so-called 'super gross wage' (gross wage plus employer payroll contributions),

(b) abolished joint taxation of married couples, but expanded the tax credit for a non-earning spouse,

(c) expanded child tax credits,
(d) introduced a cap on social security contributions,
(e) gradually lowered the corporate income tax from 24% to 19% by 2010,
(f) increased the lower VAT rate from 5% to 9%,
(g) put (at least a temporary) halt to indexation of social benefits (but not pensions),
(h) lowered the income eligibility threshold for child benefits,
(i) allowed parents to choose different combinations of entitlement length and benefit level for parental allowances,
(j) lowered welfare support for inactive long-term unemployed,
(k) reduced the birth benefit and limited its eligibility,
(l) eliminated the deceased person benefit.

Tax Evasion Dynamics in the Czech Republic: First Evidence of an "Evasional Kuznets Curve"

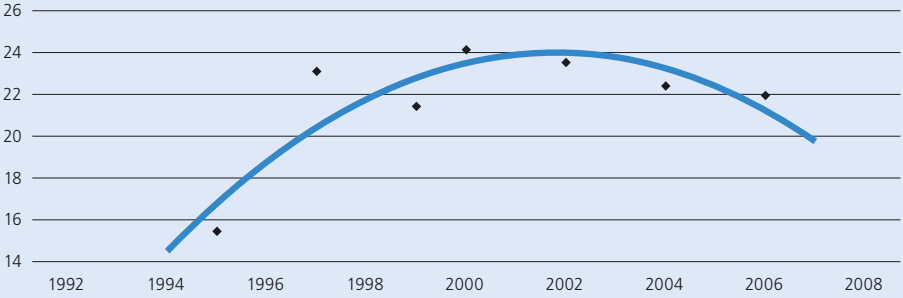
Based on: Hanousek, Jan and Filip Palda, 2008. "Tax Evasion Dynamics in the Czech Republic: First Evidence of an Evasional Kuznets Curve", CERGE-EI Working Paper No. 360.

Tax evasion is a serious problem in transition countries. That is why there are many studies trying to measure the extent of the problem. Evasion can be measured from the point of view of the value of evaded taxes, the social costs, and the response of an individual taxpayer to a change in the tax system. However, not only the value of tax evasion, but also the evasion dynamics are important. For example, the growing number of tax-evaders can motivate non-evaders to join them. This study focuses on measuring the number of tax evaders to sketch the dynamics of evasion in a transition country in order to predict future evasion using representative retrospective surveys of taxpayers in the Czech Republic.

The surveys were conducted in 2000, 2002, 2004, and 2006 in the form of face-to-face interviews, collecting information about the value of and reasons for tax evasion. In addition, the surveys also collected information about the dynamics of tax evasion. Almost all respondents were native Czech speakers. The surveys were officially labeled as questionnaires about "satisfaction with government services". They started with general demographic questions, then asked respondents about their perception of government efforts in its fight against corruption and about the quality of services provided by the government. Finally, questions about tax evasion followed. We asked respondents whether they evaded never, sometimes, or frequently. By asking the question in different years, we were able to formulate how people drift between evading and not evading.

However, the juxtaposing surveys are not panel data and for our study we need to insure that the surveys are statistically indistinguishable from each other and can be analyzed as a time series. We test the consistency of present answers about evasion with retrospective answers for the same year from a later survey and find a strong consistency between the two. Hence, despite the cross-sectional samples being drawn independently, we can conclude that the survey instrument provides a consistent measurement over time.

Figure VI.1.1 Trend in Tax Evasion in the Czech Republic (% of people sometimes evading taxes)



Source: Author's survey

The surveys report that the dynamics of rates of evasion are similar to the dynamics of macroeconomic estimates of the value of the shadow economy in Czech Republic. The percentage of evaders rose until the early 2000s and then started to fall. Thus both microeconomic and macroeconomic data show that the Czech Republic may have reached the peak of what might be called an "evasional Kuznets curve."

If the side of the non-linear evasional Kuznets curve an economy lies on is known, then it is possible to predict future evasion using estimates of Markov transition probabilities. Table VI.1.1 reports actual and predicted evasion rates. Diagonal values are estimated from the survey, but the values outside the diagonal are predicted using short-term transition matrices with the Markov property. The top-left cell indicates the true evasion rate in 2000 (25%). The cell below is the prediction of evasion in 2002 based on the 2000 survey (29%), while the true value is 0.24, which is relatively close to the prediction. Moving down along the first column we see that the furthest prediction is the least accurate because around 2002 it appears that the Czech Republic moved beyond the peak of the evasional Kuznets curve. At the same time, predictions made on surveys after 2002 fit the subsequent data very well.

Table VI.1.1 Predictions Using Fixed Markov (short-term) Transition Matrices

Year	Estimation (and prediction) is based on survey conducted in: 2000	2002	2004	2006
2000	0.25 (0.23, 0.28)			
2002	0.29 (0.26, 0.32)	0.24 (0.21, 0.27)		
2004	0.32 (0.29, 0.36)	0.22 (0.19, 0.26)	0.21 (0.19, 0.24)	
2006	0.36 (0.31, 0.40)	0.21 (0.17, 0.25)	0.2 (0.17, 0.23)	0.22 (0.19, 0.25)

Note: 95% confidence intervals in parentheses.
Source: Author's calculations using survey responses

The surveys also suggest that tax evasion is primarily a male activity which rises until late middle age and then falls; it is also strongly associated with part-time work and unemployment. There is also strong evidence indicating that citizens will avoid taxes if they do not believe they are getting quality government services for the taxes levied upon them. Some people will pay their taxes out of a sense of duty to the community. Other taxpayers will pay only if they feel that payment saves them from fines and imprisonment. In other words, tax evasion is determined by perceived probabilities of being caught and perceived penalties.
However, it is important to remember that respondents may not give true answers in surveys. In order to test for that, in addition to the direct question about tax evasion, we also asked people about their perception of the percentage of tax evaders in the country. In 2000, people believed that on average 38.3% of population evaded taxes, compared to 25.2% of positive personal answers. Moreover, evasion can be underestimated due to the illegal immigrants working in the underground economy, who did not participate in the surveys. Inevitably, this reflects the fact that tax evasion is, by its very nature, difficult to measure, and more research is necessary.

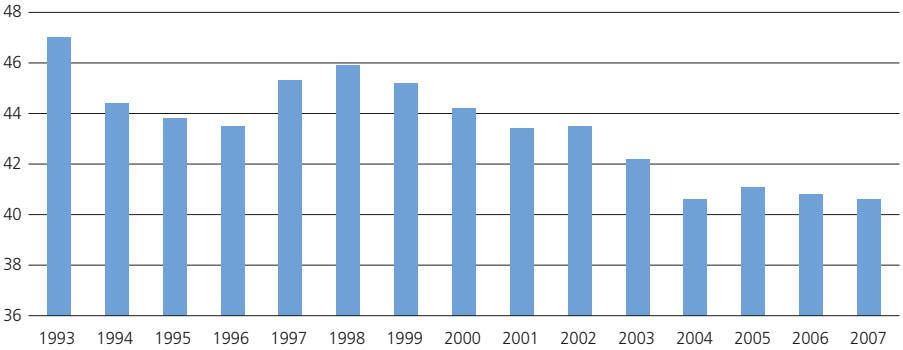
VI.2 Czech Pensions: Will a Real Reform Ever Happen?

Current Situation

The Czech Republic has at present 2.7 million people receiving social-security-financed pensions (this number includes old-age pensions, disability pensions, and orphan and widower/widow pensions); the average old-age pension is equal to 40.3% of the average gross wage (52.9% of average net wage) in 2008. This ratio has been decreasing over time *(see Figure VI.2.1)*. Expenditures related to the system amount to 8.4% of GDP.

The current pension system is a traditional centralized solidarity-based pay-as-you-go (PAYG) system with very high coverage (the basic system covers almost the whole population). The system technically consists of

Figure VI.2.1 Ratio between Average Pension and Average Wage (1993–2007)



Source: Czech Statistical Office

Table VI.2.1 Private Pension Insurance in the Czech Republic

Unit		2000	2002	2004	2006	2007	2008[a)]
Private pension insurance	Number of policies	2,372,117	2,621,881	2,963,730	3,593,645	3,936,357	3,990,014
New private pension insurance	Number of policies	595,396	347,428	435,705	558,629	586,310	157,516
Private insurance with contribution of employer	Number of policies	416,421	650,209	801,627	1,028,850	1,129,618	1,155,491
State support total	Billions of CZK	2,470	2,770	3,222	4,162	4,651	1,231
Average monthly state contribution	CZK	88.98	89.83	97.73	102.19	103.85	105.29
Average monthly contribution of a participant	CZK	326.17	354.02	396.84	430.75	449.67	440.69

Note: a) March 31, 2008
Source: Ministry of Finance

two pillars: (1) mandatory PAYG system, and (2) an additional voluntary system of private pension funds with 3.99 million (March 2008) participants and an average monthly individual contribution of CZK 440 *(see Table VI.2.1 for details*). Despite the existence of the second pillar, it is still the mandatory PAYG part that really matters for current pensioners and pensioners in the near future. Using the terminology standard in the EU, the Czech voluntary system is the "third pillar", while the "second pillar" of mandatory private savings is not present. While the number of participants of the voluntary pillar is increasing (+9.5% in 2007), the average monthly contribution is in general too small to guarantee a reasonable level of support and it was actually decreasing in recent years (it amounted to less than 2.3% of the average wage in 2007). Participation in this pillar seems to be driven mainly by (i) a government subsidy to the scheme (the government adds CZK 105 a month to each account on average), and (ii) a tax relief for employers who contribute to their employees' private pension insurance (more than 1.1 million policies are of this type). The major reason for the low level of contributions to the voluntary pillar is very low returns of the pension funds (between 2.3–3.1% nominal return in 2007, and between 2.3–3.6% in 2006). Such low returns are in turn due to very strict government regulation of the fund's investments and performance, which induces the fund managers to invest most of their assets into government bonds. The major benefit of private retirement savings, the ability to achieve high returns at relatively low risk by investing into stocks for a long period of time, is thus foregone.

The Czech PAYG system is based on solidarity between generations, between active and non-active persons (specific cases of non-activity are excluded from the obligation to contribute), and between high and low earners. As a result, the system involves a relatively high level of redistribution. The system does not seem unsuccessful on the surface: about 99% of the elderly population receives pensions from the system, and even though the ratio between pensions and the average wage is decreasing, poverty among the elderly is relatively low. Moreover, the

Table VI.2.2 Expected Development of the Unreformed Pension System

	2005	2010	2020	2030	2040	2050	2100
Contributions (% of gross wage)	28.0	28.0	28.0	28.0	28.0	28.0	28.0
Revenues of the system (% of GDP)	8.5	8.4	8.4	8.4	8.4	8.4	8.4
Expenditures (% of GDP)	8.4	8.0	8.2	9.1	11.0	12.4	13.0
Balance (% of GDP)	0.2	0.4	0.2	-0.7	-2.6	-4.0	-4.5
Cummulative balance (% of GDP)	0.3	2.4	6.3	4.4	-12.0	-42.7	-244.1
Pension to wage ratio (%)	42.1	39.7	37.4	37.0	37.9	38.2	38.0

Source: Report of the "Bezděk Commission"

system currently operates with a surplus. However, the Czech pension system faces very similar challenges and problems as pension systems of other EU countries with PAYG systems. First, changing demographic trends, i.e., a low birth rate, increasing life expectancy and the resulting ageing of the population (one of the fastest in Europe) render the original configuration of the PAYG system unsustainable. Second, a growing challenge is posed by the increasing mobility of labor within the EU.

According to current demographic projections, the pension system will get into deficit in about 2020 and the deficit will then be accelerating very fast. By 2050, the annual deficit will amount to about 4% of GDP and cumulative debt to about 43% of GDP *(see Table VI.2.2 for the original simulations of the Bezděk Commission)*. Without any radical change, the deficits will either become excessive, or the pension system will simply not be up to providing the level of support expected by the public. As the implementation of deep reforms typically requires adaptation and transition periods, the time for such a reform is running out. Other new member countries which were in a similar situation (Slovakia, Hungary, Poland, Estonia, Slovenia) have already initiated reforms that typically consist of a mix of measures modifying the PAYG system (increasing the retirement age) and introducing a mandatory private pillar.

Recent Reforms and Reform Proposals

There have been partial reforms, such as a new benefit formula, an increase in the retirement age and a systematic rule for indexing pensions (1995), or an additional increase in the retirement age and stricter eligibility for early retirement (2003). However, a decisive step that would really change the trend of development is still missing.

Even though the funded system seems to be an appealing solution to many of the troubles of the Czech PAYG system, full transition to a funded system is unlikely. Especially older Czech citizens remain rather conservative, which means they take the state-provided pension as the cornerstone of their provision for retirement and often mistrust commercialized pension insurance. This conservatism and reliance on state pensions can probably be explained by historical experience such as the 1953 monetary reform that drastically diminished the value of individual savings of a large part of the population, the impact of increased inflation after 1990, which had a similar impact, troubles of the Czech banking and other deposit institutions during mid-1990s, and the low

transparency of private pension funds more recently.

All main political parties are aware of the looming problems of the pension system. A special expert commission (the so-called Bezděk Commission) was formed in 2004–2005 and given the task of analyzing possible reform scenarios based on proposals of the main political parties. The commission concluded that a change is inevitable and suggested the year 2007 as a suitable starting point for reforms. The solutions offered by the political parties differed, but generally suggested that the PAYG pillar should be preserved with some modifications and could be supplemented by additional components. The Civic Democrats at that time preferred a uniform level of basic pensions guaranteed by the state (20% of the average wage) and assumed that decreasing compulsory contributions would open more space for private insurance. Social Democrats suggested a stronger role of PAYG with individualization in the form of "virtual" individual accounts. Only the Communist Party wished to preserve the original PAYG with some tweaking of its basic parameters. All the participating parties also agreed that the retirement age must be increased.

In 2008, the current coalition government implemented a partial reform of the pension system consisting of the following parametric changes: (1) gradually increasing the target retirement age from 63 to 65 years for men and from 61 to 64 years for women with two children (the retirement age of women is differentiated by the number of children, each child reducing the retirement age by one year); (2) changes in the calculation of the length of insurance (studying after 18 years of age should no longer count as working and contributing) and an increase in the minimum length of insurance necessary for the entitlement for a pension to 35 years; (3) introduction of an option to receive a partial pension alongside working (with a subsequent increase in the pension); (4) changes in benefits for the disabled.

According to the government's projections, the proposed reform should reduce pension expenditures by approximately 0.5% of GDP by 2025 and about 1.2% in the very long run. However, the reform is likely to have some negative microeconomic side effects stemming from the fact that the parametric changes emphasize the command-and-control features of the current PAYG system. The current rules provide a (relatively decent) pension to retired workers who satisfy certain criteria (at least 25 years of insurance, age of at least 60, etc.) and no pension to those who do not. At the same time, they imply only a weak link between the pension and wages, the number of years worked, and the retirement age. That is, the system is not actuarially fair in this regard. The current rules thus effectively induce people to work the "prescribed" number of years. As the criteria become more stringent, some people will be induced to work longer than they wished in an actuarially fair system or to take up early retirement. Others will not be eligible for benefits at all. The latter two groups will put an additional demand on government expenditures on early retirement and welfare benefits. These side effects suggest that the savings in pension expenditures projected by the government may be overstated.

Another change implemented during 2008 was an ad hoc increase in all pensions by CZK 470, adopted as a response to unusually high inflation. The Czech pension scheme has automatic indexation rules which stipulate that pensions must be indexed for inflation

plus one third of the real wage growth every January, and must also be indexed each time inflation accumulated since the last indexation exceeds 10%. In early 2008, the accumulated inflation reached 7% and the government provided an increase ahead of the rules. While understandable, this particular case is illustrative of a general pattern of indexations, which historically have been more generous than what the indexation rules prescribe. As a consequence, the magnitude of the future pension system deficit is likely to be much larger than what the government or the Bezděk Commission projections suggest, since the government systematically indexes pensions at a faster rate, pushing up pension expenditures now and in years to come.

Future Development

Even though all political parties declare the need for a pension reform (e.g., when participating in the Bezděk Commission), they differ strongly in their preferred solutions as well as in their sense of urgency for the reform. The parties agree in principle that a comprehensive pension reform should be based on a broad consensus across the political spectrum so that the new system is immune to shifts in government coalitions. However, the parties currently do not engage in a systematic effort to come up with a reconciled proposal. The current government has its own plan for a more radical reform but has a limited chance to push it through Parliament.

Given the political realities and the fact that a crisis of the pension system is not imminent, it is likely that the government will succeed with less controversial piecemeal steps (such as the ones under consideration in 2008). The expected future development of the Czech pension system can be summed up in five main points: (1) the PAYG system will continue to dominate; (2) the suggested parametric changes will improve the balance of the system and delay a crisis, with the help of recent changes in demographic trends *(see Section I.2)*; (3) the high level of redistribution inherent in the PAYG system will not only persist, but the tightened conditions regarding the minimum contribution period can actually increase the extent of redistribution; (4) regulation of private pension insurance will be improved, which may further increase the motivation to regard them as reliable instruments of saving for retirement; (5) a mandatory private pillar will not be introduced in the foreseeable future.

VI.3 Health Care Reform

A reform of the health care system, as part of the reform of public finances, was introduced to the public in November 2006 and approved by Parliament on August 21, 2007. It aimed to address the current deficiencies of the system. Even though the total health care expenditures reached only 7.2% of GDP in 2005, 2.8 percentage points below the OECD average, the government estimates that 20% of these expenditures were allocated inefficiently. A special concern arises from the overutilization of health care. The Czech Republic has the highest number of physician visits per person among all EU countries and spends almost 96.6 billion CZK on prescription drugs and treatment vouchers, while more than 10% of them are unused or not used properly. Further issues include

variation in the quality of and access to medical care across the regions of the Czech Republic, and the widespread practice of bribery.

Implementation of the reform is divided into two phases. The first phase was officially launched by the Amendment to the Act on Public Health Insurance that came into effect on January 1, 2008 and includes a set of measures for stabilizing public health financing. It introduces relatively small copayments for physician visits (30 CZK), prescribed items (30 CZK), emergency visits (90 CZK) and days spent at healthcare facilities (60 CZK). The amount of the charges paid by one person is limited to 5,000 CZK per year. This Amendment also deals with legislative changes on setting prices and payments for medications. The government's budget mandatory expenditures for health care will be further reduced by a temporary freeze on state-paid premiums (which cover almost half of the population) in the next two years at 25% of the average wage in the economy.

The direct income gained by healthcare facilities and providers from the copayments is estimated at 4.4 billion CZK (approx. 2% of healthcare payroll tax revenue). The savings in health expenditures due to the incentives to limit doctor visits and the duplication of treatment at specialists implied by the copayments are expected to be around 4 billion CZK. Results from a survey by the Ministry of Health for the first quarter of 2008 confirm these estimates. They report a decrease in the number of emergency room admissions by 39% and a decrease in expenditures on prescriptions by 20%. The initial January drop in the number of visits to specialists and hospital admissions was already partially offset.

The second phase of the reform is currently under heated debate in the governing coalition. Crucial to the reform is the proposal of seven new health-related laws, with a proposed Act on Health Insurance Companies being the most controversial of them. It is supposed to bring profit motivation to the insurance companies by converting them into joint-stock companies and allowing them to make a profit not only by cutting operational expenditures, but also by cost-effective medical care provision. With the possibility of selective contracting, insurance companies will be in a stronger position to negotiate cost and quality with care providers.

On the other hand, a proposed Act on Surveillance over Health Insurance Companies should establish monitoring authority over health insurance companies; their financial health as well as fulfillment of accessibility and transparency requirements would be overseen. Furthermore, a new version of the Act on Public Health Insurance should more clearly define the basic package of health services covered by public health insurance, with stipulations regarding time and distance accessibility rules. Patients will be able to choose from three insurance plans: one with standard provisions similar to the current level of service, one with managed care, and one with higher copayments. All three plans would charge the same premium; however, if the insurance company makes a profit, 85% of it would be redistributed to the enrollees of the latter two plans.

These major changes to the system of health insurance are facing strong public resistance. First, the idea of copayments does not fit the general perception of the right to free public health care. Critics also point out that although the amount of copayments is not high compared to other EU countries (cca. 75%), they have to be paid much more often and no patient group is exempted.

There are also major concerns regarding the new legal status of health insurance companies, mainly due to the possibility of cartel formation by joint ownership of hospitals. Intensified competition and profit maximization motives might also lead to a race-to-the-bottom on quality of care if the basic healthcare package is not properly defined.

Another concern is that the proposed system encourages "cream skimming" by insurance companies, i.e., the practice of picking young and healthy enrollees with low expected medical expenditures. The Ministry of Health claims that fair fund-pooling among insurers is ensured by an established risk adjustment system that redistributes the paid premiums according to the distribution of enrollees across various insurance companies. However, the complexity of criteria for redistribution would have to be enormous, and even diagnosis-based risk adjustment can be exploited by the elaborate coding practices of providers.

The remaining Acts are supposed to regulate other areas of healthcare provision like teaching hospitals, specific health services (e.g. assisted reproduction, abortion, blood donation) and ambulatory service. With the exception of legislation concerning teaching hospitals, where universities criticize the intention to transform teaching hospitals into joint stock companies, these reform steps are accepted without major objections.

VI.4 Defense

Expenditures

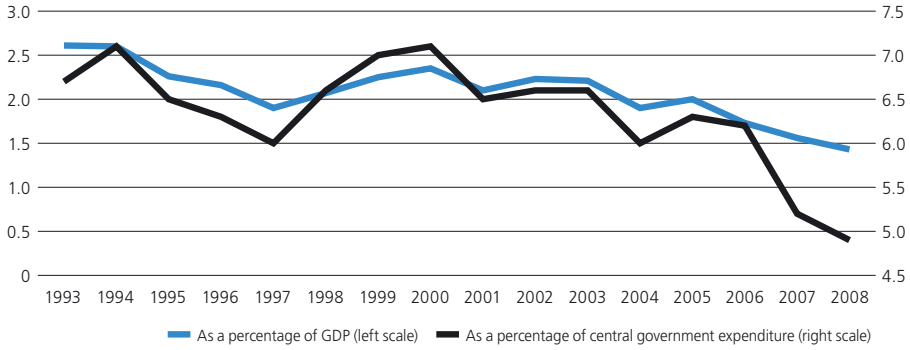
The defense strategy of the Czech Republic is based on its membership in NATO since 1999. With the admission of Slovakia into NATO in 2004, three out of four of the Czech Republic's neighbors are now NATO members themselves, with the only exception being Austria, which has a self-declared neutrality status. Security and resource-sharing within the alliance allows the Czech Republic to enjoy a peace dividend reflected in the abolition of the mandatory draft in 2004 and relatively low military expenditures as a share of GDP. As shown in Table VI.4.1, the Czech Republic spent 1.81% of GDP on military expenditures in 2005, which is below the estimated worldwide average. However, in comparison to its neighbors, it tends to spend somewhat more. The Ministry of Defense puts a more recent figure at 1.56% of GDP in 2007 and the projection for 2008 is at 1.43% (5.2% and

Table VI.4.1 Military Expenditures in 2005 (% of GDP)

EU	Expenditures
France	2.6
United Kingdom	2.4
Slovakia	1.9
Czech Republic	**1.8**
Hungary	1.8
Poland	1.7
Germany	1.5
Austria	0.9
non-EU	**Expenditures**
China	4.3[a]
United States	4.1
Russia	3.9
World	2.0

Note: a) Data for 2006.
Source: CIA World Factbook 2007

Figure VI.4.1 Defense Expenditures in Proportion to GDP and Central Government Expenditure (1993–2008, %)



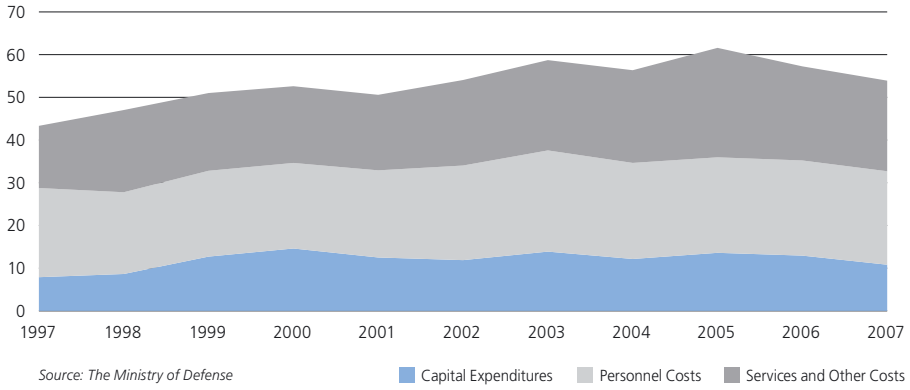
Source: The Ministry of Defense

4.9% of the central government expenditures, respectively), a gradual decrease from 2.61% of GDP (6.7% of the central government expenditures) in 1993 *(see Figure VI.4.1)*.

In absolute terms expressed in constant 2007 prices, overall defense spending has not seen any significant trend over time, first declining from 48.1 billion CZK in 1994 to 43.3 billion CZK in 1997, then climbing to 61.6 billion CZK in 2005, only to fall back to 53.9 billion CZK in 2007 *(see Figure VI.4.2)*.

In terms of expenditure breakdown, capital expenditures have been going through regular mild cycles, averaging about 13 billion CZK a year. Despite ending the draft in 2004 and the associated increase in the number of professional military employees *(see Figure VI.4.3)*, personnel costs (including employer social security contributions and retirement and other benefits) have been remarkably stable around 21 billion CZK. A part of this has to do with slimming down civilian

Figure VI.4.2 Defense Expenditures by Type (1997–2007, billions of 2007 CZK)



Source: The Ministry of Defense

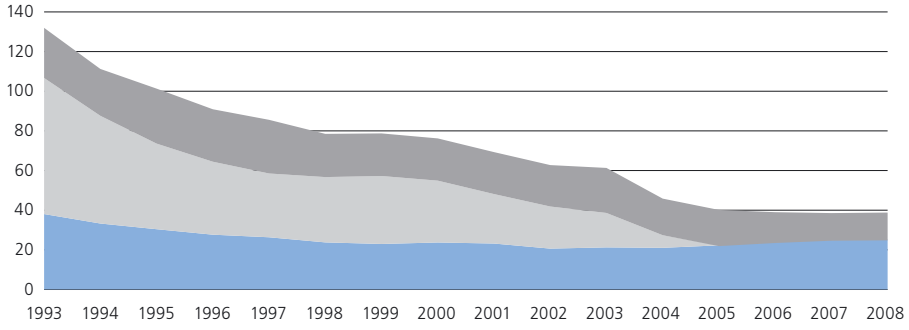
employment after 2004. Spending on services and other costs gradually grew from 14.6 billion CZK in 1997 to 25.6 billion CZK in 2005, dropping down to 21.2 billion CZK in 2007.

Organization and Human Resources

The military forces of the Czech Republic consist of the Army (the land force), the Air Force, and a set of support forces, operating under a joint command. Currently, the Czech Republic has military units on foreign missions in Kosovo, Bosnia and Herzegovina, Iraq, and Afghanistan. As of January 1, 2008, the Ministry of Defense employed 25,177 military professionals and 13,628 civilians. Figure VI.4.3 shows that the number of military as well as civilian personnel has been declining rapidly since 1993. As of January 1, 1993, there were 38,049 military professionals, 68,630 conscripts, and 25,286 civilian employees. The number of active military has decreased mainly due to the abolition of the draft in late 2004, but also due to a gradual decline in the number of military professionals to 20,627 at the beginning of 2002. Given the full professionalization of the military, the latter figure has since increased to over 25,000.

In 2007, of the 21.9 billion CZK of personnel costs, 11.86 billion CZK were spent on wages, 4.15 billion CZK on employer social security contributions, and 5.88 billion CZK on retirement and other benefits. These figures imply that the average gross monthly wage of the Ministry of Defense employee (military and civilian combined) stood at 25,469 CZK in 2007. In comparison, the average 2007 gross wage in the economy was 21,692 CZK per month. Because military employees tend to be better paid than civilian employees, their wage premium over the average wage is likely to be even higher. Furthermore, former military employees tend to receive larger retirement benefits than civilians, further adding to the compensation premium. Although this comparison would suggest that being a military professional may be an attractive career option, this may not be true for all skill levels. For example, the Air Force is losing experienced pilots because they can triple their salary by working for commercial airlines instead *[Hospodářské Noviny, May 23, 2008]*.

Figure VI.4.3 Defense Employment (1993–2008, in thousands)



Note: Data as of January 1 of each year
Source: The Ministry of Defense

Strategic Developments

The public debate on national defense over the last year has been dominated by the intention of the U.S. government to build a missile radar in Brdy, about 60 km southwest of Prague. This radar is to be a part of the planned U.S. anti-missile defense system, together with an interceptor missile base planned in Poland. The U.S. government claims that this radar is needed to protect the U.S. and other NATO members against attacks from "rogue regimes", most notably Iran. Russia expressed strong disagreement with the project, arguing that the protective shield is targeted against its fleet of intercontinental ballistic missiles, hence upsetting the strategic balance of military power.

Apart from external opposition to construction of the radar, there is also strong internal opposition by the Social Democrats and the Communists, the two opposition parties, as well as a variety of civic groups. Although issues such as the environmental impact and the resulting requests for compensation by local municipalities have been brought up, a major sticking point in the original debate was whether a referendum should be held on the issue. The opposition parties were requesting such a referendum, whereas the government preferred to avoid it.

In the meantime, while visiting the U.S. in early 2008, Prime Minister Mirek Topolánek continued to negotiate details of the potential radar agreement with the U.S. government. Simultaneously, the two governments also signed a memorandum lifting the visa requirement for Czech citizens traveling to the U.S., which was implemented starting November 17, 2008. Although the government insists that these two issues are unrelated, the opposition and the media have labeled it the "visa-for-radar deal."

After another round of negotiations, an official treaty establishing the radar base in Brdy was signed on July 8, 2008 in Prague. The base is going to operate under U.S. command, with the Czech military having a permanent presence on the base with the right to monitor all activities. The number of U.S. military on the base is capped at 250. In the future, upon establishment of a NATO anti-missile defense system, the base should move under its command. The two parties are still negotiating details of a secondary treaty specifying judicial treatment of the U.S. troops in and out of the base as well as their taxation.

The signing of the treaty does not end the radar saga quite yet as the agreement has to be ratified by both countries. While the decision of the U.S. Congress is just a rubber stamp, prospects for the treaty are much more dim in the Czech Parliament. No formal date for the vote has been set yet, and the opposition parties continue to oppose the treaty.

On August 20, 2008, the U.S. and Polish governments signed an official treaty on placement of an interceptor missile base in northern Poland, the second leg of the planned missile defense system. As part of the deal, the U.S. committed to stationing 96 Patriot anti-aircraft missiles near Warsaw. This treaty still awaits ratification in both countries.

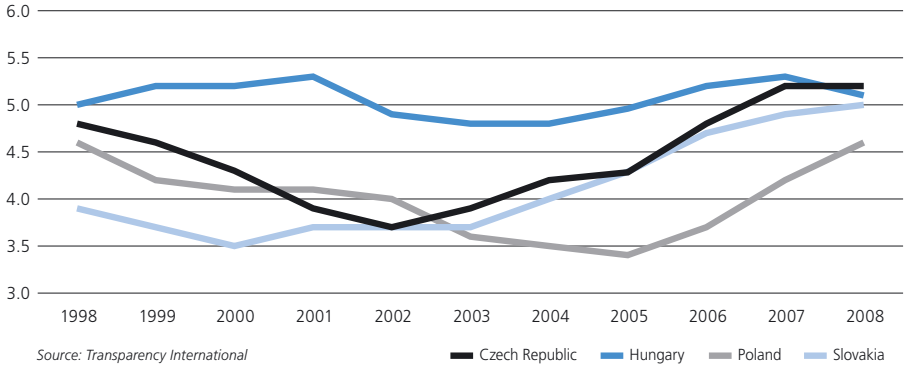
VI.5 Corruption

According to a Transparency International report of September 2008, the latest Corruption Perception Index (CPI) score of 5.2 puts the Czech Republic in 45th place among 180 surveyed countries (the score ranges between 0 and 10, where 10 corresponds to a country with no perceived corruption and 0 to a country with high perceived corruption). The score is the same as in 2007, and it is the best achieved score in the last decade. Within the EU27, though, the Czech Republic stays at the tail, followed by Hungary, Latvia, Slovakia, Italy, Greece, Lithuania, Poland, and the new member states Bulgaria and Romania.

Even though the CPI ranking suggests some improvements, petty corruption continues to prosper in the Czech Republic. A survey of 524 Prague citizens conducted for Prague City Hall shows that 75% of respondents consider corruption a serious problem. Only 25% would report and 35% would likely report corruption to the authorities *[Mladá Fronta Dnes (MFD), August 2, 2007]*. A PricewaterhouseCoopers poll reports that, over the last two years, more than 30% of the surveyed firms found themselves in situations when they felt that a bribe was expected from them. Almost half of respondents suspected that they missed a business opportunity because their competitor paid a bribe *[The Prague Post, May 21, 2008]*. The building industry appears to be the most corrupt sector, where 77% of respondents of a survey conducted for Hospodářské Noviny reported that they have experienced bribery and 50.3% admit being tempted to pay a bribe to secure an order for their firm *[Hospodářské Noviny, June 26, 2007]*.

The number of cases involving police officers, especially the Foreign Police and the Traffic Department, regularly fill pages of newspapers. Dubious public orders or property transfers regularly put the spotlight on municipal halls across the country. Several lengthy and widely publicized cases concern a number of soccer players, managers and referees suspected of manipulating match results. It seems that the soccer association takes the problem more seriously and is

Figure VI.5.1 Corruption Perception Index of V4 Countries



Source: Transparency International

harsher in its punishments than the politicians and the justice system.

The most serious cases, however, too often involve government representatives. The famous case of former Prime Minister Gross continues. Gross resigned in 2005 after his failure to explain the origin of 1.2 million CZK he used to purchase an apartment was widely discussed in the media, attracting some international attention as well *[Herald Tribune, March 19, 2005]*. Two years later, he was questioned again, this time about the origin of some 30 million CZK he invested in shares of Moravia Energo in 2007. Moravia Energo was founded by the ironworks company Třinecké železárny which received a 2 billion CZK subsidy in 2003 when Gross was a Deputy Prime Minister. This naturally gives rise to further suspicions. Gross claims the money came from a bank loan *[MFD, October 1, 2007]*.

Gross showed some dignity and resigned in face of suspicions, which is not the case of the Deputy Prime Minister and Minister for Regional Development Jiří Čunek. In 2007, Čunek was suspected of having taken a half a million CZK bribe in 2002 while mayor of Vsetín. The investigation was suspended after sudden replacement of the prosecutor. In October 2007, Čunek was accused by the media of collecting government social assistance while having more than 3 million CZK in his bank accounts. After increasing pressure from the media, which demanded explanations about his curious financial affairs, together with reopening of the Vsetín corruption case, he finally resigned in November 2007. It took the prosecutor less than two weeks to suspend the corruption case again and Čunek was reappointed to his office in April 2008 without ever providing any meaningful explanations *[MFD, November, 2007]*.

More than thirty persons have been prosecuted in connection with the enormous scandal at the Ministry of Defense. The whole case started with an easy-to-overlook investigation of shady public orders concerning barracks reconstructions *[MFD, October 10, 2007]*. In January 2008, the number of indictments rose to twenty-four and the prosecutor, Liška, mentioned organized crime *[MFD, January 4, 2008]*. Two weeks later, the newspapers brought shocking news about millions of CZK in illegal funds used by the general staff officers to finance luxurious gifts, vacations, and receptions *[MFD, January 17, 2008]*.

Even though the CPI ranking has been improving in recent years, ever emerging scandals involving high-ranking politicians who go unpunished hardly suggests that there is light at the end of the corruption tunnel in the Czech Republic.

VI.6 Non-profit Sector

The Czech non-profit sector is comprised of various legal forms, with foundations and foundation funds, public benefit organizations, civic associations, and church organizations being the four most important, accounting for almost one-half of non-profit entities in the Czech Republic. There were 44,977 organizations with one of these four legal forms in 2006 (a 5% increase from 42,645 in 2005). In addition, there are other types of non-profit entities such as the organizational units of civic associations or owners' associations of housing units that increase the total number of active non-profit entities to 97,076, con-

stituting more than a 10% increase from 85,594 units active in 2005 *(Czech Statistical Office)*.

Although the number of non-profit entities in the Czech Republic has been growing since the 1990s, suggesting an increase in the importance of the sector, the economic importance of the sector is better reflected by other indicators, such as the share of non-profit sector output on GDP and employment. Unfortunately, both of these indicators are difficult to assess in the Czech environment because the definition of the sector and organizations that belong to it remains unclear. Thus, the numbers regarding the share of the non-profit sector on GDP vary from 0.7% to 2%.

There are at least two figures for the number of full-time employees. According to the official statistics by the Czech Statistical Office, the non-profit sector had 36,075 full-time-equivalent paid employees in 2006 (excluding public universities), which represented a negligible 0.7% of total paid employment in the Czech Republic in that year. In addition, there were 138,593 persons working on other than employment contracts and 890,571 volunteers working in the sector. However, according to the new classification *(Satellite Account for Non-profit Organizations)* currently being introduced by the Czech Statistical Office to facilitate international comparisons, the number of full-time employees in the non-profit sector stood at 72,704 in 2004 (1.4% of employment in the Czech Republic).

Nevertheless, despite the differences in these indicators, they show that in spite of continuing growth in the number of non-profit institutions, the size and economic importance of the Czech non-profit sector remains relatively small. To compare, the non-profit sector accounted for about 5% of U.S. GDP in 2004 and 4.7% of Belgian GDP in 2003.

According to the USAID report on the state of the non-profit sector in 2006, public resources are the major source of funding for non-profits, followed by donations from companies, foundations and individual donors. However, in most cases there is one major source (often providing about 80% of revenues), which does not ensure proper funding source diversification.

According to an official analysis of the funding of non-profits for 2006 *(Rozbor financování NNO z vybraných veřejných rozpočtů v roce 2006)*, the total amount of funding from public budgets increased between 2005 and 2006. In 2006, the non-profits received 7.5 billion CZK from the national and regional governments. Compared to 2005, support from the national government increased by about 2 billion CZK, while support from the regional governments increased by 518 million CZK.

Individual philanthropy remains stable and does not represent a major source of funding for the non-profits. According to a survey conducted by Factum Invenio in 2006, 66% of Czechs donated to non-profits in support of humanitarian causes in the previous two years. Also, 52% of respondents reported they donated repeatedly. The Donors Message Service (DMS) introduced in 2004 remains an important tool for individual philanthropy. In the three years of its existence, it raised 156 million CZK via nearly 5.8 million sent DMSs.

One of the major topics discussed in 2007 was the problematic legislation regulating non-profits. The main problem is lack of a clear-cut definition of a non-profit organization. There are four main legal forms, each of them governed by a specific law. But,

because the differences between these forms are minor, a majority of organizations are established as civic associations, which are subject to nearly no restrictions or regulation. Similarly confusing is the tax legislation, which grants tax breaks to non-profits for their publicly beneficial activities and allows donors to deduct their donations from their tax base. The legislation requires non-profits to keep separate accounts for their various activities (beneficiary and profit-generating) and grants various exceptions. These problems have been recognized not only by non-profits' representatives but also by the current government. The governmental advisory board for non-profit organizations has initiated an official discussion about new legislation for non-profit organizations to address the existing shortcomings. If successful, the new legislation could become effective in 2009.

VII. SECTORAL DEVELOPMENT

VII.1 Residential Real Estate Market in the Czech Republic: Still Going Strong

Housing markets around the world have been affected by the bursting of the real estate bubble in the United States, which had been triggered by a high delinquency rate among sub-prime mortgage borrowers. However, the impact of the sub-prime mortgage crisis followed by severe liquidity problems of major investment banks has been different for each country. According to the Economist's house price indicators from May 22, 2008, there are several countries with housing price appreciation over 10%: Singapore, Hong Kong, Australia, Sweden, and China. On the other side of the spectrum, there are five countries where the real estate prices actually fell: Japan, Britain, Germany, Ireland, and the United States. The markets also slowed down in Switzerland, the Netherlands, Denmark, and Spain. Many Central and Eastern European countries, including the Czech Republic, experienced rising property values. The question is how these countries have been

Table VII.1.1 Prices and Rents for Existing Appartments (68 m²)

	2001	2002	2003	2004	2005	2006	2007
Prices – CR							
Average 335 Regions, 1,000 CZK	408	437	520	604	620	675	902
Annual Growth Rates %		7.23	18.98	16.06	2.74	8.89	33.62
Growth 2001–2003 %			27.58				
Growth 2004–2007 %							49.48
Prices – Prague							
in 1,000 CZK	1,252	1,437	1,843	1,855	1,809	2,047	2,517
Annual Growth Rates %		14.78	28.25	0.65	-2.48	13.16	22.96
Growth 2001–2003 %			47.2				
Growth 2004–2007 %							35.69
Rents – CR							
Average 335 Regions, CZK	3,565	3,732	4,206	4,598	4,627	4,565	4,911
Annual Growth Rates %		4.67	12.72	9.32	0.62	-1.34	7.58
Growth 2001–2003 %			17.98				
Growth 2004–2007 %							6.8
Rents – Prague							
CZK	7,526	8,443	10,252	9,893	9,204	9,139	9,275
Annual Growth Rates %		12.19	21.42	-3.5	-6.96	-0.7	1.48
Growth 2001–2003 %			36.22				
Growth 2004–2007 %							-6.25

Source: Institute of Regional Information, Brno

affected by the collapsing U.S. market. This section aims at characterizing the situation in the Czech Republic. The focus is on the market fundamentals until the end of 2007 due to data availability.

The analysis of factors affecting housing prices can be used to determine if there is a bubble in the Czech real estate market. Knowing whether there is a bubble is clearly important since a policy maker can guess the qualitative consequences of a burst such as a reduction in consumption followed by a recession. The first sign of a bubble is the rapidly increasing price of real estate. Using data from the Institute of Regional Information in Brno, the average price of a standard 68 m^2 apartment in the Czech Republic increased by 27.6% in the 2001–2003 period and by 49.5% in the 2004–2007 period *(see Table VII.1.1)*. The growth for prices in Prague for the same periods was 47.2% and 35.7%, respectively. The shock from entering the European Union was anticipated and absorbed ex-ante since the rate of change in apartment prices slowed down significantly in the period 2004–2006. Prices then accelerated in 2007; they grew by 33.6% in the Czech Republic overall and by 23.0% in Prague, respectively. These unexpectedly large growth rates could be caused to some extent by shifting demand from newly built to existing apartments. The rapid acceleration outside of Prague may also be partly explained by an improved economic situation in these regions. However, the price increases are still large and the question remains if they have been supported by fundamentals.

The definition of fundamental variables reflects an underlying present-value model or a structural model. These are the two most frequently used ways of deciding whether real estate is overvalued. The present-value model ties together asset prices with a stream of earnings related to a particular asset. This model views a house or an apartment as an investment vehicle with future rents determining the current prices. Predictions of this model are similar to yet another view which considers market segmentation, with apartments for rent on the one hand and apartments for purchase on the other. Both alternatives suggest that higher rents imply higher prices (either because a purchase is a good investment or because renters purchase their own apartments) and vice versa. Between 2001 and 2003, rents increased by 18.0% in the Czech Republic and by 36.2% in Prague (again using data from the Institute of Regional Information in Brno, *see Table VII.1.1*). In the subsequent four-year period, rents increased by 6.8% in the Czech Republic and actually dropped by 6.3% in Prague.

The structural model is a simple demand and supply model where supply determinants include depreciation, construction costs, etc., and demand determinants are, among other things, income, interest rates, housing cost, and the user costs of owning a house. Here we will focus on two main determinants of demand and one of supply: income, the mortgage market, and construction costs *(see Table VII.1.2)*.

The increase of net disposable income and construction costs in 2001–2003 was 6.2% and 4.9%, respectively. Both the leftward shift of the supply curve and the rightward shift of the demand curve increased the prices of housing. While reliable data for the mortgage market are not available for this period, putting together these numbers with the growth in rents goes a long way towards explaining apartment prices. The relevant numbers are 6.2% + 4.9% + 18.0% = 29.1%, which is comparable with the

Table VII.1.2 Determinants of Real Estate Prices

	2001	2002	2003	2004	2005	2006	2007
Net Disposable Income							
Mln CZK, 2000 Prices	1,750,744	1,790,709	1,858,831	1,914,389	2019537	2132085	2296042
Annual Growth Rates %		2.28	3.8	2.99	5.49	5.57	7.69
Growth 2001–2003 %			6.17				
Growth 2004–2007 %							19.94
Construction Costs							
Index, Average in 2005=100	89.47	91.88	93.88	97.37	100.20	103.08	106.75
Annual Growth Rates %		2.69	2.18	3.72	2.91	2.88	3.56
Growth 2001–2003 %			4.93				
Growth 2004–2007 %							9.64
Avg. Mortgage Rates %				5.24	4.67	4.83	5.16
Mortgage Volume							
Total, Mln CZK				7,583.9	8,378.3	8,267.5	12,930.4
Annual Growth Rates %					10.47	-1.32	56.4
Growth 2004–2007 %							70.5

Sources:
http://www.czso.cz/csu/csu.nsf/i/graf_2_stavebnictvi_celkem/$File/gipccr051608_2.xls
http://dw.czso.cz/pls/rocenka/rocenkavyber.makroek_duchod_en
http://www.cnb.cz/cnb/STAT.ARADY_PKG.PARAMETRY_SESTAVY?p_cSest=942&p_ind=AABB&p_lang=EN

27.6% apartment price growth from 2001 to 2003. This supports the conclusion that the growth of apartment prices was in line with the fundamentals from 2001 to 2003. The numbers for the 2004–2007 period are 19.9% + 9.6% + 6.8% = 36.3%, much lower than the increase of 49.5% in the apartment prices. The missing element is the boom in the mortgage market that made mortgages available to a large portion of the population. This drove apartment prices up due to a higher demand for housing, especially in 2007. As a result, the real estate prices seem high compared to the fundamentals.

The reason for the large increase in the volume of mortgages is a big mystery. Czech households may have increased their demand for mortgages by anticipating an increase in mortgage rates, which did not materialize. However, this is not likely to be the whole story since the mortgage volume rose by a whopping 56.4% in 2007. The numbers published by the Czech Statistical Office in the first quarter of 2008 indicate that housing prices are still increasing albeit more slowly than in 2007. The macroeconomic outlook has worsened somewhat due to slower GDP growth and rising inflation. This suggests that fundamental factors affecting the housing market will be weaker than in the past and hence the overvaluation of Czech residential real estate will be even greater. Sooner or later, the residential prices should go down.

VII.2 Development of Information Technologies in the Czech Republic

The sector of information technologies (IT) is one of the fastest developing industries in the Czech economy. During the period from 2000 to 2005, the turnover of the Czech IT sector was steadily growing on average at 16.5% per year. In 2005 there was a temporary slowdown of the growth rate mainly due to satiation of the market for enterprise software applications. However, in 2006 the drop in revenue from software was almost completely made up for by increased demand for computers fuelled by the long-term depreciation of the U.S. dollar. Preliminary estimations made by the International Data Corporation for 2007 predicted a moderate slowdown and stabilization of the annual turnover growth rate of the Czech IT industry at approximately 9.5%.

In general, IT development can affect economic growth in two ways. First, the high share of value added embedded in IT products and services makes their export-oriented development a desired source of national income for newly emerging market economies with a large number of well-qualified technical specialists. Second, the innovative nature of output produced in this sector is likely to improve domestic economic efficiency, and the speed and intensity with which modern information technologies are utilized by local society. The Czech economy has benefited through the first channel, which is evidenced by the dominant share of computer technology exports in the active trade balance of the country in the last three years. However, there is room for improvement in the second channel, as the levels of the indicators of IT penetration in Czech society and the economy are still below the average for the EU25.

Foreign Investments in the Czech IT Industry

After accession of the Czech Republic to the EU in May 2004, the Investment Incentives Act became one of the national programs of state aid allowing the Czech government to financially support strategic business projects on its territory without the need for individual review by the European Commission. Specific programs which were relevant to the IT sector were the Permanent Prosperity Program and the Tandem and Impulse R&D Program, as well as the export support programs carried out by the Ministry of Industry and Trade in cooperation with the Czech Agency for Support of Trade (Czech Trade) and the Czech Agency for Business and Investment Support (Czech Invest).

The Czech Republic was ranked first by Gartner for best offshore IT destinations in the region of Europe, Middle Eastern and Africa (EMEA) in 2008. The stable growth of the Czech economy together with state legislative and support measures for stimulating foreign investment inflow make the Czech IT market a favorable destination for large multinational investors as a base for their regional business. From 2000 to 2006, many global IT companies built their manufacturing and logistical centers in the Czech Republic. Most prominent among them are the European computer manufacturing and service center of Asustek Computer in Ostrava, the EMEA regional headquarters of Hewlett-Packard for production, installation and distribution of computer equipment in Rudná near Prague, the computer manufacturing centers of Foxconn in Pardubice and of Celestica in Ráječko u Blanska, as well as

customer support centers of Acer and Giga-Byte Technology in Brno and of Williams Advanced Materials in Louny. Regarding IT services and more particularly software development, the largest foreign projects in the Czech Republic are the Mainframe Centre of Excellence of Computer Associates (CA) and the center of Monster Technologies for development and administration of advanced internet applications in Prague, and the development center of Red Hat in Brno.

As a result, the share of computer products in Czech exports has increased rapidly in the last 5 or 6 years. Computing technology goods form more than half of the high-tech product exports from the Czech Republic. Both imports and exports of IT services are dominated by orders and supplies from the EU25, mainly Germany and the Netherlands. On the other hand, the imports of IT goods come mainly from China (22%), Japan (10%) and Taiwan (6%). While exports of IT services are higher than imports, the trade balance of the IT sector is still negative due to a trade deficit in IT goods. Nevertheless, the average annual growth rate of exports for the six years preceding 2007 (35.3%) was higher than that of imports (20.1%), and so the trade deficit has been diminishing steadily.

Czech IT Workforce: Quality, Structure, Wages

In order to sustain the positive trends in the expansion of the Czech IT industry, in addition to attractive legal conditions and state aid programs an important factor is the availability of an IT-educated workforce. The number of persons with a tertiary education in computer science in the Czech Republic doubled in six years, reaching 14,562 individuals in 2006. Altogether, there were 87,569 computer professionals in the Czech Republic in 2006 (CSO). Among them, the greatest share attained secondary education with state examination (48.12%) or lower (7.54%), while 44.34% attained tertiary education. By type of job, 47.90% were computer associate professionals, 26.96% were computer equipment operators and 12.73% were industrial robot controllers. In the first group, computer programmers had the largest share (70.06%), followed by computer systems designers and analysts (11.36%).

Like the rest of the world, there are not enough qualified IT specialists in the Czech Republic, which has been reflected in the fast rise of salaries in the IT sector over the last three years. According to a survey carried out by Robert Half International (RHI) among more than 1,000 computer professionals from the Prague region, in 2007 the highest increase in wage was experienced by university graduates and computer employees with up to three years' experience. The most attractive positions for university graduates are in software development with Java, C and C++, where monthly salaries usually exceed 30,000 CZK. The average nominal rise of wages for these positions in 2007 was 20%.

Partly due to the fall of the American dollar, constant currency wages in the Czech Republic increased faster than in the U.S.. For some positions, such as an IT project manager, they already reached a level that is only 10% lower than the U.S. average. However, other senior positions usually pay half as much, while wages for junior positions are 3–4 times lower in the Czech Republic compared to the U.S.. The difference between the Czech IT wages and the corresponding wages in developed European countries is similar. Computer professionals are best paid in Germany, Switzerland and Great Britain, while in the Czech Republic the current wage

levels correspond to the ones in Spain, Italy and Luxembourg.

The recent positive trends in compensation in the IT industry have generated high motivation and job satisfaction of employees in the sector. According to a survey carried out by Markent at the beginning of 2007, a majority of respondents working in the IT sector report satisfaction with their current employer measured by the level of wage they require to stay with their current employer. This finding was confirmed in another survey carried out by Markent among senior IT specialists at the beginning of 2008. It showed that 53% of respondents had not changed their employer in the previous 5 years, which is in contrast to the American practice where IT specialists are usually hired on a project basis rather than for a permanent job position. These results reflect a more prominent role of extra benefits for the motivation of IT employees in the Czech Republic. According to survey data from RHI, unlike other industries, IT sector employees place a high value on extra benefits such as improving their qualifications through courses and certification for proficiency in a given programming language or operating system, followed by traditional benefits like an office car, a 5–6 week holiday, an office laptop, and the opportunity to work from home.

Expectations for the future are that the rise of wages in recent years will hold back a large share of local IT specialists from searching for a job abroad and simultaneously will make the Czech Republic a more attractive place for computer professionals from Eastern Europe. Thus the increased demand for qualified IT specialists is expected to be satisfied, which will bring the wage growth rates down to more temperate levels. At the same time, enterprises are likely to compete for attracting IT professionals based on the extra benefits they offer rather than on further increases in wage payments.

Penetration of IT in Czech Society: A Comparison with the EU25

In contrast to the increase of IT potential on the supply side, on the demand side, the Czech Republic has so far shown an insufficient ability to catch up with the developed European countries in the use of modern IT technologies. According to the Network Readiness Index (NRI), a complex measure of the progress with which a given society adopts IT technologies, the Czech Republic ranked 21st among the EU25 countries in 2006, a drop of 2 places relative to 2004.

According to the CSO, 1.678 million Czech households (39.6% of all households) had access to a personal computer (PC) in the second quarter of 2007. This corresponds to 4,075,300 individuals (46.8%) over 16 years of age who used a PC at home. For comparison, in 2003 the share of households with a PC among all Czech households stood at 23.8%. Despite this substantial growth, an international comparison from 2006 shows that the Czech Republic lagged behind most of the EU25 countries, where the average share of households with PC access was 62%.

The situation with home usage of the Internet in 2006 was similar: 1.354 million Czech households, or 32% of all households in the Czech Republic (80.7 % of all households with a PC at home), were connected to the Internet. This corresponds to 3,336,000 individuals (38.3% of the population) with home access to the Internet. For comparison, in 2003, 14.8% of PC-enabled households were connected to the Internet. Again, despite this substantial growth, the Czech Republic lagged behind the EU25, where the average

share of households with Internet connection was 51%.

A 2006 international comparison of the demographic structure of regular PC and Internet users shows that the majority of Czech PC users (58.1%) was in the age range of 25–34, but the largest share of PC users (68.3%) was recorded in the age group of 16–24, followed by age group of 35–44 (64.9%). The same age ranking held for Czech Internet users. However, the "digital divide" by age was shrinking, as the highest growth in the share of Internet users in the total population was observed in the age groups of 25–34 (70%) and of 55–64 (118.5%) in the last 5 years. Individuals in these two age groups were lagging behind the most compared to the corresponding age group population in the EU25 in terms of access to the Internet.

The shrinking digital divide by age could be partially explained by the digitalization of public administration. Concerning Czech local public administration, 96.2% of municipal administrations with more than 20,000 inhabitants as well as 90.7% of the ones with a population between 5,000 and 19,999 had a broadband Internet connection in 2006. A majority of these municipal administrations had their own Internet web site. More than half of the Czech municipalities (54.6%) provided free Internet access to citizens on their premises. In 2006, free Internet access was also provided by 7,905 regional libraries, 34% more than in 2005.

The digital divide by education, with only a 40% share of Internet users among individuals with a secondary education, compared to the EU25 average of 61%, has been shrinking as well. During the last 5 years, there was a stable trend toward increase in the share of individuals with a secondary education in the population of Internet users (from 60.1% to 65.1%). For the group of individuals with a tertiary education, the share of Internet users in the Czech Republic (83%) was close to the EU25 average (84%), while for those with a primary education it was even 5 percentage points higher (37%) than the EU25 average. The latter can be associated with the good level of current IT infrastructure in the Czech educational system. In 2006, almost all Czech schools and universities were PC-equipped. A majority of elementary schools (59.1%) and almost all secondary schools (91.1%), higher professional schools (92.8%) and universities (100%) had a broadband Internet connection. The average computers-to-student ratio was 0.12 in elementary and secondary schools and 0.32 in higher professional schools. These were close to the respective EU25 averages.

The most stable digital gap appears between social groups sorted by employment status. While almost all Czech students (93%) access the Internet regularly, as is common in the European countries, the shares of Internet users among other individuals not in the labor force (10%) and among the unemployed (26%) were still only half of the corresponding shares in the EU25.

Corporate and Public Investments in IT

The readiness of Czech citizens to use the advantages offered by IT technologies affects the economy's development through the progress with which computer technologies are implemented in Czech business and public administration. The latter is measured by the intensity of IT use in enterprises and public institutions as well as by the volume, structure, and dynamics of investments in computer technologies.

According to CSO, in 2006 41.6% of those employed in business used a personal com-

puter at work, 13.3 percentage points more than in 2000. The penetration of computers was highest in the industries of financial intermediation (96.2% PC-enabled employees), electricity, gas and water supply (60.5%) and wholesale and retail trade (54.2%). The share of Internet-connected enterprises in the Czech Republic was 95.2%, a majority of which had a broadband connection (88.9%). Almost all restaurants and hotels (91.9%) had their own website, which was true also for companies engaged in financial intermediation activities (91.8%). The share of companies with a website in the remaining the industries varied between 60–70%. By this indicator, the Czech Republic was close to the EU25 average in 2005 (64% of enterprises having their own website and 75% having a broadband Internet connection). The Czech Republic resembled most of the EU25 countries also in terms of the share of enterprises selling online (12.1%). The Internet was used as a trading gateway mainly by hotels and restaurants (32.9%) and wholesale and retail companies (18%).

According to a forecast by Markent, the volume of Czech IT investments in 2007 is expected to be 43.1 billion CZK. This would present an increase of 1 billion CZK compared to the previous year and the first positive growth of IT investments since 2003 when their absolute maximum (49.7 billion CZK) was reached.

VII.3 Developments in the Telecommunications Industry

In 2007, the most important trend in the Czech telecommunications market was its further integration with other countries' markets into the single European electronic communications market. As part of this integration, the Roaming Regulation came into force on June 30, 2007 and led to a significant fall in roaming prices of all three GSM (Global System for Mobile) operators. Another common element of the single European electronic communications market, the 112 emergency phone number, has been successfully implemented in the Czech Republic as well. The "112 calls" are available free of charge from all publicly accessible telephone services, including payphones.

In the broadband market, one of the most promising telecom markets, the penetration rate reached 14.56% in January 2008, which was still below the EU average of 20.04%. Thus, further growth in the Czech broadband market can be expected. The main characteristic of this market is extensive platform competition. While the incumbent Telefónica O_2, whose market share of fixed retail access lines is 33.9%, is dominant on the retail DSL (Digital Subscriber Line) market (82.9%), alternative operators provide their services based mainly on the WLL (Wireless Local Loop) and cable modem platforms. In general, the DSL platform remains the most important technology for providing broadband services (40.9% of total fixed retail lines), followed by WLL (34.7%) and cable modem (20.6%). Wholesale DSL provision is bundled with line access provision.

The Czech telecommunications market is characterized by one of the highest shares of traffic generated by mobile networks in total voice traffic in the EU. This value reached 74% in the first half of 2007. The growth in mobile voice traffic was due to the higher number of customers and special marketing promotions by mobile operators, who offer

free air time. The mobile penetration rate achieved 120% in October 2007, which is higher than the EU average of 111.8%. Another typical feature of the Czech mobile market is the continuing migration of customers from pre-paid to post-paid services. The share of post-paid customers (45%) is higher than the EU average (39.9%), potentially due to a new generation of post-paid tariffs introduced by all three GSM operators in 2006–2007. The essential feature of these tariffs is that customers with a monthly subscription get a credit which they can spend flexibly on voice, SMS or MMS services.

T-mobile remains the leader in the GSM mobile market with 41% market share. It is closely followed by Telefónica O_2 (39%) and Vodafone (20%). T-mobile and Telefónica O_2 have successfully launched 3G (third generation of mobile phone standards) services, while Vodafone is expected to launch it sometime in 2008. At the same time, T-mobile is already offering 4G (fourth generation of mobile phone standards) services with much higher data download limits. The forth mobile operator, U:fon, which was officially launched by MobilKom in May 2007, offers its services based on CDMA (Code Division Multiple Access) technology. In 2006, the Czech Telecommunications Office (CTO) identified the country's mobile market as effectively competitive, and, therefore, did not impose any price regulation. Even the prices for mobile number portability remain unregulated even though they are well above the EU average.

In the landline market, the penetration rate is rather low at 40%, and it is expected to decrease even more as a result of landline to mobile substitution. Throughout 2006–2007, there was significant consolidation of the market that reduced the number of market players to four. The incumbent operator, Telefónica O_2, remains the dominant provider of direct access (97.8%), though its market share by retail revenue in the overall fixed telephone market is one of the lowest in the EU (64.4% in December 2006). This is partially due to alternative operators' success in the business segment of the market, specifically with regard to international calls, where their market share by retail revenue is 60%. These alternative operators offer their services mostly via CS (Cable Select, an ATA device setting for automatic master/slave configuration) and CPS (Carrier Preselect, a landline telephone option that lets European customers use a third party for call charges, instead of using the national operator, without dialing a prefix). As an attempt to strengthen its positions in both mobile and landline segments, the incumbent operator has launched Duo Mobil offer, which provides bundled fixed and mobile services for better prices than if they were provided separately. Other mobile operators have expressed their interest in replicating this offer by cooperating with the existing landline market players.

Broadcasting is mainly provided by terrestrial transmission (60%), including digital (10%) and analogue (50%), followed by cable (24%) and satellite (14.6%) transmission. The share of IPTV (Internet Protocol Television) is very low (1.13%). Cable broadcasting is dominated by UPC, which merged with Karneval, its biggest rival, at the end of 2006. Analogue terrestrial broadcasting is solely provided by České Radiokomunikace. As part of the process towards the national digital switchover, analogue broadcasting has been successfully switched off in the region of Domažlice, and its switch-off is currently running at Ústí nad Labem. At the national level, the digital switchover is expected no earlier than October 10, 2010.

VIII. CZECH REPUBLIC AND THE EU

VIII.1 The Euro: A Political Decision Needed

Upon entering the EU, the Czech Republic committed itself to joining the Eurozone. In the meantime, a discussion about the common European currency and its benefits for the Czech economy started. The Czech government and the Czech National Bank have adopted the Strategy of Accession to the Euro Area which mentions the years 2009–2010 as possible dates for Euro adoption if all necessary conditions are fulfilled. However, the required degree of sustainable convergence of the Czech economy to the Euro area economies in terms of the Maastricht criteria has not been achieved, partly due to excessive budget deficits. Therefore the Ministry of Finance and the Czech National Bank have not yet recommended that the government let the Czech currency enter the exchange rate mechanism ERM II. Consequently, 2009–2010 was abandoned as the possible Euro adoption date because of the inability to fulfill the criterion on exchange rate stability which forbids a country's exchange rate to move outside certain fluctuation margins during the previous two years without an official central parity realignment. Discussions about the adoption of the Euro continued after the creation of the right-wing government in 2006 and led to the New Strategy of Accession to the Euro Area released in autumn 2007. This document was prepared jointly by the Ministry of Finance and the Czech National Bank and was widely viewed as an official road map towards Euro adoption. The Strategy analyses the preparedness of the Czech Republic for the Euro and the country's potential to benefit from its adoption. Besides the openness of the Czech economy and strong degree of financial integration and high inflows of FDI from the Euro area countries, the Strategy also emphasizes some weaknesses such as uncertain government fiscal policy and the rigidity of the labor market. Due to these structural problems, the document does not set any exact entry target date.

This indifferent stance toward Eurozone accession is in accordance with leading politicians' opinions. Prime Minister Mirek Topolánek from the Civic Democratic Party (ODS) and President Václav Klaus are well known for their EU skepticism. The daily rhetoric emphasizes the need to be well prepared for such a dramatic economic change associated with the transfer of the country's own monetary policy to the European Central Bank. Rather than setting an official date for Euro adoption, the government prefers to first carry out necessary reforms, such as reforms of the tax, pension, and health care systems. The purpose is to strengthen and enlarge the maneuvering room for fiscal policy, which will play a dominant role in macroeconomic stabilization after Euro adoption.

The government is unlikely to decide to join the Euro area soon, despite permanent calls to do so from the Czech corporate community. These have grown stronger due to Euro adoption by Slovakia as of the beginning of 2009, which will make it the 16th member of the currency club. Furthermore, local government units financing their development projects from EU structural funds

Table VIII.1.1 The Maastricht Criteria and the Czech Republic

		2004	2005	2006	2007	2008
1	HICP	0.7	1.0	1.2	1.6	0.2[a)]
	Criterium	2.2	2.5	2.7	3.1	3.2[a)]
	CR HICP	2.6	1.6	2.4	2.8	4.4[a)]
2	Interest rate	4.28	3.37	4.1	4.5	4.0[a)]
	Criterium	6.28	5.37	6.1	6.5	6.5[a)]
	CR interest rate	4.75	3.51	3.9	4.54	4.5[a)]
3	Government Deficit	-2.9	-3.6	-2.9	1.6	1.5
4	Government Debt	30.7	30.4	30.4	28.7	28.4

Note: a) Reference period April 2007–March 2008
Source: European Central Bank Convergence Report, May 2008

argue for the necessity of refinancing losses in their budgets due to the strong appreciation of the Czech crown *(see Section III.3 for further details)*. The strong Czech currency has become an obstacle for exporters as well, adding further calls for an early Euro adoption.

The Czech Republic fulfills two of four Maastricht criteria: the fiscal criterion and the long-term interest rate criterion. In 2007, inflation started to follow an upward trend and recently the country has been recording an inflation rate well above the national bank's target of 3%, such as 7.1% in May 2008. This development is interpreted by the CNB as a temporary effect due to the rise in indirect taxes and administrative prices. However, the cost pressures of the labor market have become more evident and have started to push up the inflation rate. However, the inflation forecasts expect inflation to fall close to the inflation target in 2009. The criterion on exchange rate stability has not been fulfilled because the Czech crown has not participated in ERM II. As for the fiscal criterion, the sustainability of low budget deficits has been questioned. The Czech Republic was subject to an EU Council decision on the existence of an excessive budget deficit which was abrogated in May 2008. The fiscal deficits have been below the reference value of 3% since 2006, with the 2007 deficit reaching 1.7% of GDP. The general government debt-to-GDP ratio has had a slightly declining trend. However, further fiscal consolidation is needed to comply with the objectives of the Stability and Growth Pact.

The prospects for fulfilling the Maastricht convergence criteria in the future are good. However, the Euro project is a political issue and the current situation in the ruling coalition government is very fragile. The next important moment for the Euro target date discussion will come at the end of autumn 2008. At that time, a new Assessment of the Fulfillment of the Maastricht Convergence Criteria and the Degree of Economic Alignment of the Czech Republic with the Euro Area, including the recommendation for the government to join or not join ERM II, will be published.

Convergence of the Visegrád Countries' Stock Markets with the Euro Area

Based on: Babecký, Jan, Luboš Komárek and Zlatuše Komárková, 2007. "Financial Integration of Stock Markets among New EU Member States and the Euro Area." Finance a úvěr/Czech Journal of Economics and Finance, *57(7–8), 341-362.*

In a monetary union, integration of financial markets (e.g. money, credit, bond, and equity markets) plays the key role in assuring the effective transmission of common monetary policy. The importance of conducting an assessment of the degree of financial integration across the Euro area member countries is stressed by both central banks and academic institutions. The more integrated financial markets are, the more effectively monetary policy is transmitted through the financial system, particularly within the monetary union. As financial markets expand, their fluctuations have stronger effects on real economic variables such as private consumption. Thus, along with a number of benefits, financial integration brings certain costs. It is widely believed that the benefits outweigh the costs, provided that mechanisms of controlling for financial stability are implemented.

Joining the Euro area without a sufficient degree of financial market integration can cause problems in terms of transmission of the common monetary policy and common shocks. A high degree of financial market integration implies that Euro area-wide shocks dominate; hence, the common monetary policy can be effectively applied to react to common shocks. On the other hand, in the case of weak financial market integration, local (i.e. country-specific) shocks prevail, which diminishes the effectiveness of the common monetary policy. In the case of new EU member states, which are committed to adopting the Euro at some point, it is especially important to analyze the alignment of their markets, including the financial ones, with those of the Euro area countries.

In this paper, we focus on the financial integration of stock markets in four new EU member states (the Czech Republic, Hungary, Poland and Slovakia) with the Euro area. As stock markets grow in size, they represent an increasingly important but not yet well-examined segment of the financial system. We test for the existence and determine the degree of financial integration of the selected new member states relative to the Euro area. The empirical analysis is conducted at the country level (using national stock exchange indices) and at the sectoral level (considering banking, chemical, electricity and telecommunications indices).

How can the degree of financial market integration be measured in practice? Financial integration, which is a broad concept, can be quantified using three main dimensions, namely price-based, news-based and quantity-based measures. In this paper we focus on the first class of measures which could be viewed as a direct check of the law of one price on the condition that the compared assets have similar characteristics. Price-based measures can then be quantified by means of, for example, beta- and sigma-convergence. Our evaluation consists of: (1) an analysis of alignment (by means of standard and rolling correlation analysis) to outline the overall pattern of integration; (2) the application of the concept of beta-convergence (through the use of time series, panel, and state-space techniques) to identify the speed of integration; and (3) the application of sigma-convergence to measure the level of integration. We perform our analysis on weekly stock market returns, collected for the period from 1995 to 2006, which gives about 600 observations per series.

We find evidence of stock market integration on both the national and sectoral levels between the Czech Republic, Hungary and Poland and the Euro area. The results unambiguously point to the existence of beta-convergence of the stock markets under review at the national and sectoral levels. Moreover, the speed at which shocks dissipate is quite high, particularly less than half of a week. We do not find a major impact of either the EU enlargement or the announcement thereof on beta-convergence. In fact, the high speed of beta-convergence was achieved much earlier, during the 1990s. Furthermore, the dynamics of the sigma-convergence for the Visegrád group suggest an overall convergence, yet there are some signs of an increase in volatility since 2005.

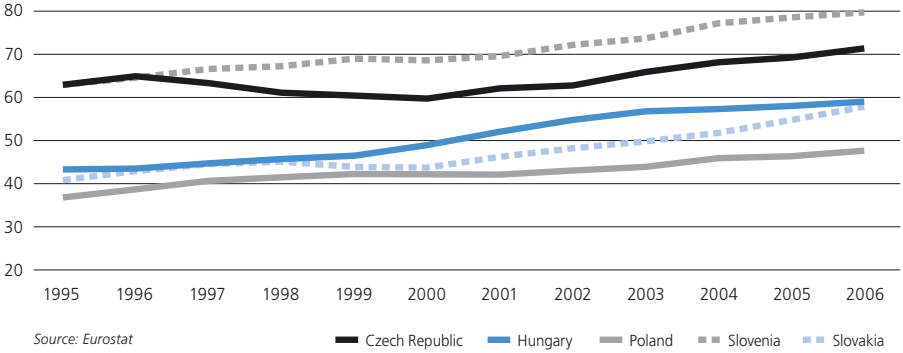
VIII.2 Economic Convergence with the European Union

The Czech Republic joined the European Union in 2004. At that time, it had already completed transition to a functioning market economy with democratic political institutions, a condition required for EU accession. The level of economic development in the Czech Republic was comparable to Portugal, the least developed incumbent EU country. EU accession was expected to further intensify the economic links with the European single market, which would contribute to faster convergence in terms of per capita income level with the developed countries of the European Union.

Even before EU entry, the economic links with the EU countries were intensive. The share of EU15 in total goods trade in 2003 exceeded 60 percent while the share of EU25 was almost 80 percent. This reflected a process of relatively rapidly growing openness in the first years of transition and reorientation of foreign trade towards competitive Western European markets. Mutual trade between the Czech Republic and the countries of the European Union was gradually liberalized during the 1990s based on the EU Association Agreement and was thus mostly free of barriers at the beginning of 2004. Upon accession, all the remaining barriers, including those trade- and investment-related with other accession countries, were eliminated.

In terms of income level convergence, in 2006 the Czech Republic recorded a level of GDP per capita in purchasing power parity at 71% of the average level of the Euro area, more than in Portugal, and, among the 2004 accession countries, only lagging behind Cyprus and Slovenia. However, the Czech Republic has not been among the new EU member states to converge at the fastest pace. Slovenia and Slovakia erased twice as much of a difference in the per capita income level gap during the 1995–2006 period as the Czech Republic did. The reason is that the catching-up trend of the Czech economy with that of the Euro area has been remarkable only since 2000. During the second half of the 1990s, with the exception of the year 1996, Czech economic growth was lower than that of the Euro area as a whole, or was even negative. This reflected the effect of gradually unwinding transformation problems, ineffective investment, structural changes, and the occurrence of specific aggregate shocks including the exchange rate crisis in 1997. Since 1999, the Czech econo-

Figure VIII.2.1 GDP per Capita in Purchasing Power Standards (EU-12=100)



my had grown again and despite a temporary slowdown in the years 2001 and 2002, gradually accelerated to a fast pace of over 6 percent after 2004. This rapid economic growth has been mostly driven by developments on the supply side. Important production capacities based on foreign direct investment were constructed and gradually put into use. Also, there has been gradual improvement in the regulation of the product market, like simplifying the rules for setting up a business. These developments enhanced labor productivity that contributed significantly to real GDP growth. Growth in employment has been visible in recent years, too, reflecting partly some improvements in incentives to work, and also the cyclical development of the economy. As a result, the Czech economy has recorded higher economic growth rates than the Euro area since 2001 and has started to catch up at a considerable pace. Between 2001 and 2006, the Czech economy erased about ten percentage points of the per capita income gap with respect to the Euro area.

Although labor productivity growth has had an important contribution to the catch-up

Figure VIII.2.2 Contribution of Employment and Labour Productivity to Real GDP Growth (%)

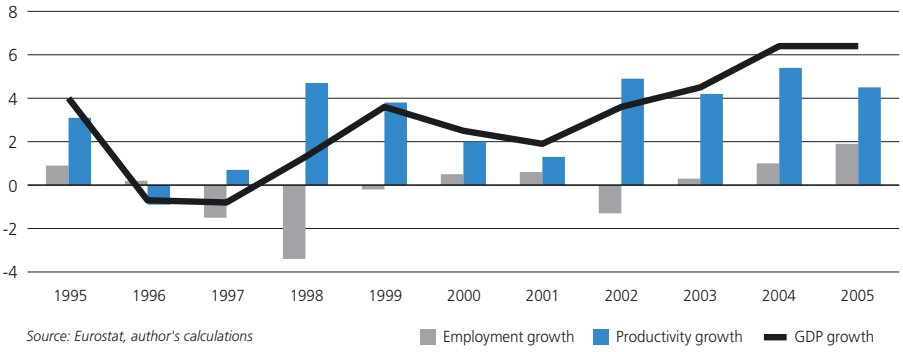
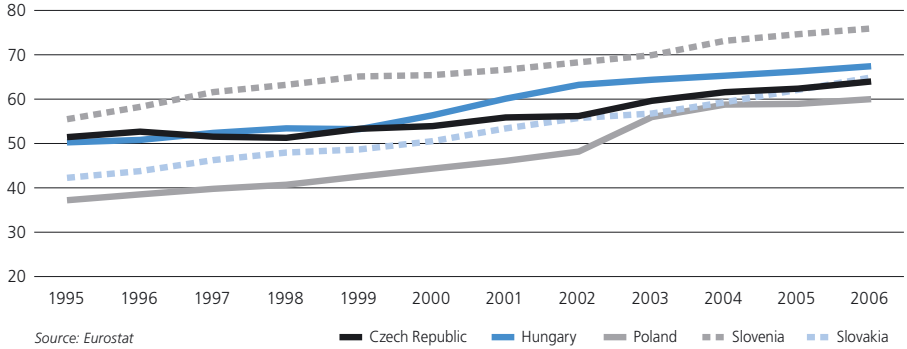


Figure VIII.2.3 Labour Productivity in Purchasing Power Standards (EU12=100)



in per capita income level, labor productivity convergence has not been faster than in the other Central and Eastern European countries. In 2006, the Czech Republic lagged behind the countries under comparison except Poland in terms of labor productivity level expressed in purchasing power parity terms.

As a result, significant room for catch-up in per capita income still remains. And even more room for convergence remains in the price level. The comparative price level of GDP in 2006 was just below 60% of that of the Euro area, which is less than would be implied by the level of economic development. Cross-country comparisons show that the Czech Republic lies below the regression line of price level on income level per capita within the EU. Although the Czech Republic has undergone a significant degree of convergence since 1995, when the comparative price level of GDP was approximately 35 percent, this development is not yet sufficient to bring the price level in the Czech Republic to a level corresponding to the relative income level.

The price level convergence with the Euro area in 1995–2006 was a bit uneven and took place most intensively in 2001–2002 and after

Figure VIII.2.4 Comparative Price Level of GDP (EU12=100)

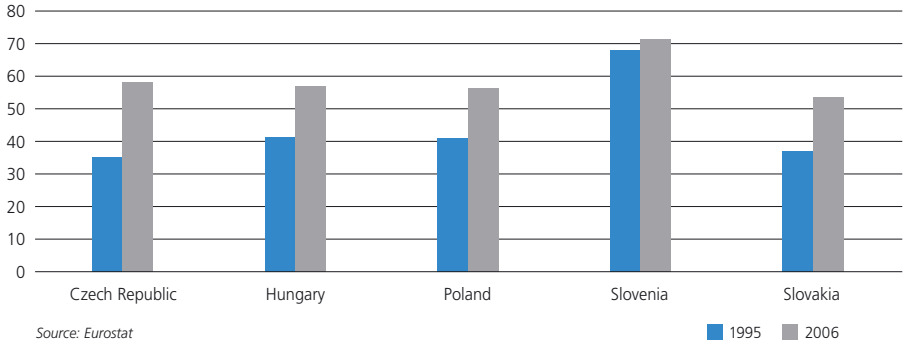
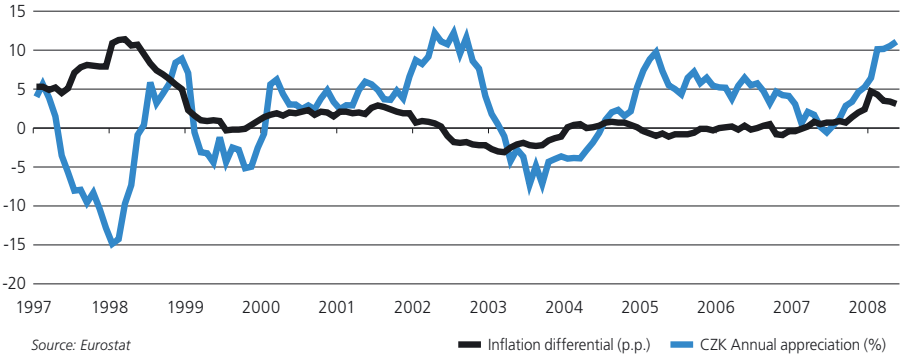


Figure VIII.2.5 Sources of Price-level Convergence vis-à-vis the Euro Area (%)



Source: Eurostat

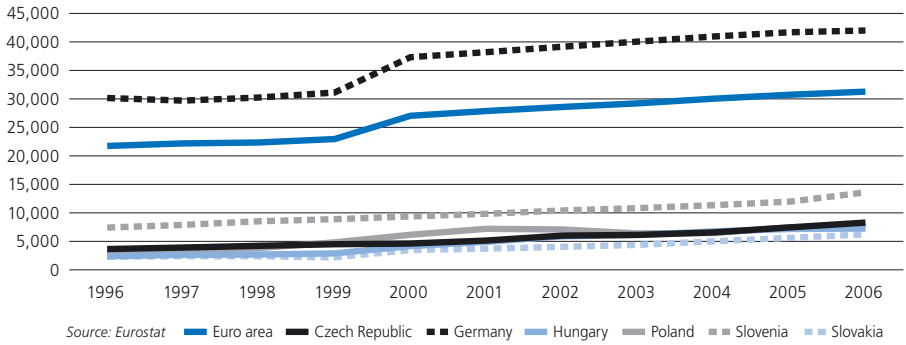
2004. The largest part of it was due to the appreciation of the Czech crown that, at an annual rate, exceeded 10% in some periods. Much less of the increase in comparative price level can be attributed to actual consumer inflation. In fact, the disinflation process in the Czech Republic after the introduction of inflation targeting in 1998 was successful and since 2002 there has been minimal or even negative inflation differential vis-à-vis the Euro area. Real exchange rate appreciation vis-à-vis important Euro-area trade partners thus took place largely via nominal exchange rate appreciation. More recently, however, the Czech inflation rate picked up to levels well above the inflation rate in the Euro area, contributing to the real appreciation. However, according to predictions of the Czech National Bank, this upsurge is likely to be temporary, returning the burden of real appreciation back to the nominal exchange rate.

It is to be expected that the comparative price level will converge further. Its growth will stem from the convergence to the level that would correspond to the degree of economic development of the Czech Republic and also from further growth of the per capita income level. The lesson for the adoption of the Euro is that the Czech Republic, like the other countries that expect to experience a significant degree of real and nominal convergence, will probably see an important inflation differential after adoption because the nominal exchange rate adjustment channel for real appreciation with respect to the Euro will be closed upon adoption.

Real economic convergence can also be expected to have implications for the development of wages. The low level of labor costs was one reason the Czech economy was so attractive for foreign direct investment in the late 1990s. Indeed, average earnings expressed in Euros were less than 20% of those in the Euro area. This ratio has somewhat increased over time but still remains well below 30%. The disparity is even higher with respect to Germany; for example, in 2006 the level of Czech gross wages expressed in Euros was at 20% of the German level. In purchasing power parity, Czech inhabitants have recently been earning about one third of remuneration earned in Germany.

The lack of a more significant convergence in wages has been determined by several factors. While the intensity of competition faced by the Czech producing sectors was already

Figure VIII.2.6 Average Annual Gross Earnings (EUR)



high before EU accession, participation in the European single market exacerbated it. The downward pressure on Czech wages stems from the effort of Czech producers to maintain competitiveness both on domestic and export markets. Similarly, a significant part of foreign direct investment in the Czech Republic is motivated by the still low level of labor costs in combination with relatively skilled labor. The potential threat of employment losses if the domestic companies lose competitiveness has thus limited wage pressures. This has been intensified by the effect of the appreciation trend in the Czech crown, which has exerted further pressure on the profit margins of domestic companies and has not allowed them to increase wages more. An exception was the years 2002–2003 when the ex-post real wage growth was relatively high and significantly exceeded the growth in labor productivity.

Another factor affecting wage dynamics has been labor migration. Theoretically, the effects could be mixed, depending on the prevailing direction of net labor migration. While accession to the European single mar-

Figure VIII.2.7 Average Annual Gross Earnings in Purchasing Power Standards (Germany=100)

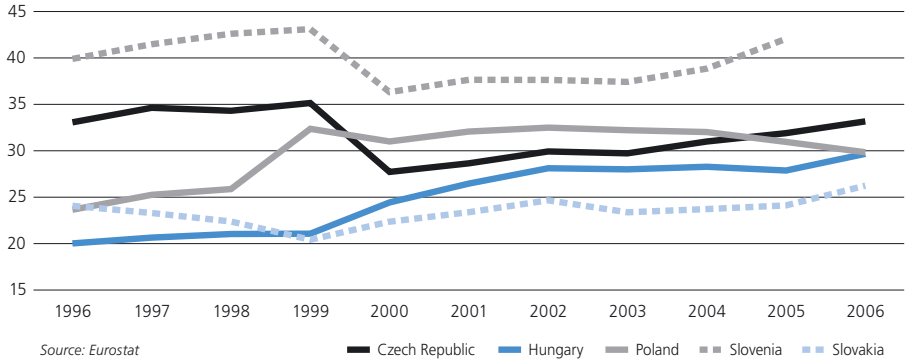
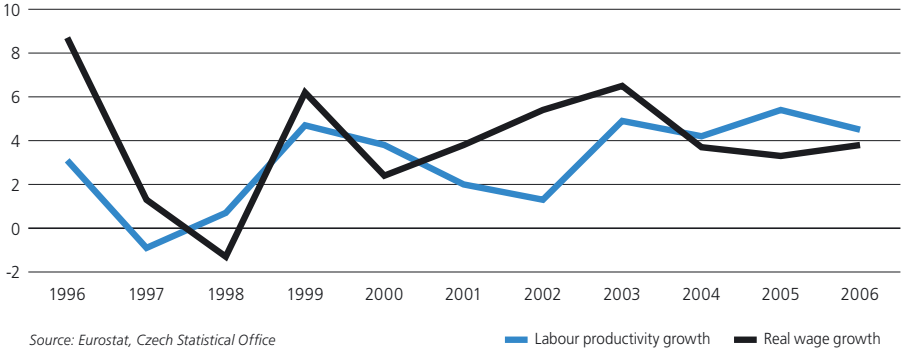


Figure VIII.2.8 Labour Productivity and Real Wage Growth in the Czech Republic (%)



Source: Eurostat, Czech Statistical Office

ket could have imposed upward pressure as the wage differentials would motivate Czech workers to move abroad where earnings are relatively higher, hence causing labor shortages and leading to equilibrating movements in wage levels in particular sectors, this was not the case. The free movement of labor, one of the four freedoms of the European single market, has been in principle limited for most 2004 EU accession countries (except Malta and Cyprus) by the possibility of the incumbent EU countries to impose so-called "transition periods" that postpone the effect of full labor market liberalization. This meant employment limitations for the workers from the eight new EU member countries for up to 7 years, with possible revisions by the imposing countries after the first two and then after the next three years. However, by 2011, any restrictions to the free movement of labor from the new member countries have to be eliminated. While some countries liberated the movement of labor vis-à-vis all the new member countries including the Czech Republic immediately or shortly after the 2004 EU enlargement (the United Kingdom, Ireland, Sweden), the flow of labor from the new EU member countries was quite importantly restricted by some of the other old member countries. This naturally limited the international labor movement. Currently, ten out of fifteen incumbent EU member states have completely liberalized access to their labor market. Austria, Belgium, Denmark, France, and Germany still maintain restrictions, though the last four started to simplify their procedures or relax restrictions in some sectors or professions. Importantly, Austria and Germany, the two old member countries neighboring the Czech Republic, maintain additional national measures in relation to the cross-border provision of services, which also effectively limits the labor movement. The restrictions currently in place should be revised again in 2009. In order to maintain the transitory measures beyond 2009, a country must prove that free movement of labor would cause severe distortions to its labor market.

All that said, a snapshot of the actual labor migration from new to old member states shows that it is not extremely intensive, which is in part due to language and cultural barriers as well as geographic distance.

On the other hand, labor migration taking the form of influx of labor to the Czech

Republic from abroad, has actually been a slowing factor to wage growth. The inflow of foreign workers has intensified since 2005 with the economic boom in the Czech Republic. The largest nationality groups of foreign workers in the Czech Republic are Slovaks (almost one half of the registered foreign labor force), Ukrainians (about one quarter) and Poles (approximately one tenth). Foreign workers work primarily in manufacturing, construction, retail and real estate and, with the exception of Slovaks who effectively have no language barrier, mostly in professions which require low qualifications.

Convergence in wages, albeit slow, continues, thanks to higher nominal and real growth of wages. The external purchasing power of Czech wages is also significantly backed by the appreciation trend of the Czech currency.

VIII.3 Czech Republic and EU Funds

Entry to the European Union brought high expectations about additional financial sources for the economy. Currently, "how much EU money do we receive" is an important political question in nearly all of the eight member states that entered the EU in 2004. This subsection discusses the problems of EU funds in the Czech Republic from the international perspective. In addition, results from the first fiscal period 2004–2006 are used to predict the situation under the currently started New Financial Perspective effective for the second fiscal period 2007–2013.

EU funds are distributed to the new member states through various individual programs. According to the European Commission, these programs are to achieve the following objectives: income convergence, agricultural support, and improvement of internal market institutions. The most important source of EU money is the Structural Fund intended to support underdeveloped regions in the EU. The sources from this fund are allocated through five main operational programs (OP): OP Infrastructure, OP Industry and Enterprise, OP Human Resources Development, OP Rural Development and Multifunctional Agriculture, and Joint Regional OP. These operational programs are implemented in all regions of the Czech Republic except for Prague, as they can be used to support growth only of regions with GDP per capita below 75 % of the EU average.

The number and structure of programs differs across fiscal periods. Currently, payments from the EU funds are defined in the New Financial Perspective (NFP). The main change from the previous period is the high increase in the allocated amount. While the total commitments in the previous period were about 1.67 billion EUR, the NFP promises more than 24.45 billion EUR. This increase mainly reflects the fact that the pre-budget agreements for NFP were signed at a time when all member states were regular members of the EU. The budget for the previous period was partly granted within the framework of pre-accession aid.

The commitments under the NFP have increased also in relative and real terms. For the Czech Republic, the average annual commitments nearly doubled from 2% in the "old" period to nearly 4 % of GDP under the NFP (this period is more than two times longer). Other countries do not enjoy such a high increase, but the level of their average

Table VIII.3.1 Estimated Spending of EU Funds 2004–2013 (in millions of EUR, 2004 prices)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Agriculture	91	425	540	495	641	722	828	919	1007	1067	328	328
Structural actions	32	99	460	793	1,736	2,367	2,989	2,923	3,233	3,466	3,494	3,800
Internal Policies	27	11	36	73	73	73	73	73	73	73	0	0
Compensations	332	294	194	0	0	0	0	0	0	0	0	0
Pre-accession assistance	157	71	37	21	18	0	0	0	0	0	0	0

Source: Rosennberg and Sierhej (2007), International Monetary Fund Working paper 07/77

annual commitments is on average higher by 0.5 percentage points of GDP. This is mainly given by the GDP per capita in the Czech Republic, which is one of the highest in the region. The EU applies a general rule for the allocation of funds to new member states that generates a negative relationship between GDP per capita and level of commitments. Concerning the structure of commitments under the NFP, the EU strategy is focused primarily on income convergence. The Structural Fund therefore dominates, followed by the Agriculture Fund.

The first fiscal period (2004–2006) was generally not very successful in terms of absorption of the available commitments, but the trend was positive. In particular, among all the new member states, the Czech Republic was the least successful in requesting interim payments in 2005 and 2006. According to Christopher Resenberg and Robert Sierhej of the IMF, the Czech Republic requested only about 3% and 26% of all commitments in 2005 and 2006 respectively. This unfavorable situation has changed recently, the trend is positive, and further improvement is expected in the near future. This is also confirmed by a recent report of the Czech government, which states that the Czech Republic had absorbed up to 60% of all the commitments from the previous fiscal period by March 2008. And because of the "n+2" rule, which allows withdrawal of the payments two years after the end of fiscal period, further improvement is likely in 2008. Based on previous experience with fund withdrawals, Resenberg and Sierhej predict a significant increase in the absorption of the Structural and Cohesion Fund commitments. These include funds for infrastructure investment and human capital development.

The problematic side of EU funds is the need for co-financing, which turned out to be a binding constraint especially during the period 2004–2006. There was a negative net fiscal impact of EU-related transfers on fiscal balances in all the new member states during this period. The size varied from 0.5% to 1.5% of GDP according to Resenberg and Sierhej's calculations. The net negative impact on the Czech fiscal deficit ranged between 0.4% and 1% during the 2004–2006 period. The main reasons for this were high co-financing needs and contributions to the common EU budget. These contributions amounted to around 1% of GDP. However, these calculations are preliminary since the fiscal period 2004–2006 has not closed yet and some payments have not yet been withdrawn.

Prospects for the period 2007–2013 are more optimistic, as the co-financing needs

have significantly decreased (under 10% for infrastructure financed from the Structural Fund), and a positive effect of the net impact of EU funds on the fiscal balance is expected in the next period.

The absorption capacity of individual countries is strongly influenced by the institutional framework that is used for managing the funds. This institutional framework differs across countries. There are two main systems. While the Baltic countries use a more centralized management that makes decisions about both paying and managing of financial resources, Central European countries assign managing and paying authorities to separate institutions. This is also the case in the Czech Republic, which has been criticized by many authorities, including the European Commission, for a high administrative burden that makes life for potential recipients "difficult." In general, the centralized system has proved to be more efficient and flexible for the absorption of EU funds. However, recent figures suggest that the decentralized system possibly just had a slow start but will catch up soon. Therefore, there is a strong chance that the Czech Republic will finally enjoy the maximum from the available EU resources.

IX. COMPARATIVE STATISTICS

Comparison of Selected Economic Indicators for CEFTA Countries

General Characteristics

	CZ	HU	PL	RO	SK	SL
Surface	78,886	93,030	312,685	238,391	49,034	20,273
Population (mln)	10.29	10.06	38.13	21.57	5.39	2.01
Urban share (%, 2004)	75	65	63	55	58	49

Gross Domestic Product in 2007

	CZ	HU	PL	RO	SK	SL
GDP total (current prices, bln of EUR)	127.1	101.1	308.6	121.4	54.9	34.8
GDP per capita (current prices, EUR)	12,355	10,046	8,094	5,629	10,179	17,310
GDP per capita, in PPS (EUR)	20,200	15,800	13,300	10,100	17,000	22,600
GDP per capita in PPS (EU27=100)	81.1	63.3	53.6	40.5	68.4	85
GDP Growth Rate (%)	6.2	1.1	6.6	6.0	10.4	6.8
Gross Fixed Capital Formation (% of GDP)	24.3	21.0	21.7	30.5	26.1	27.5

Note: results for Romania are forecasts.

Prices in 2007

	CZ	HU	PL	RO	SK	SL
Consumer Price Inflation (%)	3.0	7.9	2.6	4.9	1.9	3.8
Price Level (EU27=100)	62.6	65.7	63.4	64.7	63.0	76.9

Labor Market in 2007

	CZ	HU	PL	RO	SK	SL
Unemployment rate	5.3	7.4	9.6	6.4	11.1	4.9
Average Gross Monthly Minimum Wage (EUR)	288.0	257.9	245.5	114.3	217.4	521.8
Labor productivity per Person Employed (EU27=100)	72.6	73.7	67.2	41.7	76.6	86.1
Labor Productivity per Hour Worked (EU27=100)	62.1	61.9	61.3	35.6	71.9	83.5
Employed individuals (official statistics, % of population)	50.6	38.8	36.1	43.8	40.4	47.9

Government Finances in 2007

	CZ	HU	PL	RO	SK	SL
General government consolidated budget balance (% of GDP)	-1.0	-5.0	-2.0	-2.6	-1.9	0.5
General government consolidated gross debt (% of GDP)	28.9	65.8	44.9	12.9	29.4	23.4
Total government expenditure (% of GDP)	42.6	49.8	42.0	37.3	34.6	42.4

Exports and Imports in 2007

	CZ	HU	PL	RO	SK	SL
Imports (bln of EUR)	113	94.2	156.4	63.7	53.6	27.5
Nominal Growth Rate of Imports (%)	16.26	14.18	16.98	30.00	21.27	19.57
Exports (bln of EUR)	109.5	89.2	144.9	46,6	50.5	25.8
Nominal Growth Rate of Exports (%)	17.24	15.84	14.64	20.10	24.69	16.22
Trade balance (bln of EUR)	-3.5	-5.0	-11.5	-17.1	-3.1	-1.7

Note: provisional values.

X. LIST OF CERGE-EI WORKING PAPERS

All working papers are available at http://www.cerge-ei.cz/publications/

331. Teodora Paligorova
Corporate Governance and Executive Pay: Evidence from a Recent Reform
JULY 2007

332. Levent Celik
Informative Advertising and Consumer Search in a Differentiated-Products Duopoly
JULY 2007

333. Ashot Tsharakyan
Welfare Effects of Housing Price Appreciation in an Economy With Binding Credit Constraints
JULY 2007

334. Andreas Ortmann, Sasha Prokosheva, Ondrej Rydval, Ralph Hertwig
Valuing a Risky Prospect Less than Its Worst Outcome: Uncertainty Effect or Task Ambiguity?
JULY 2007

335. Zuzana Fungacova
Can the Market Fix a Wrong Administrative Decision? Massive Delisting on the Prague Stock Exchange
AUGUST 2007

336. Eugen Kovac, Kresimir Zigic
International Competition in Vertically Differentiated Markets with Innovation and Imitation: Trade Policy versus Free Trade
AUGUST 2007

337. Vyacheslav Mikhed, Petr Zemcik
Do House Prices Reflect Fundamentals? Aggregate and Panel Data Evidence
OCTOBER 2007

338. Vyacheslav Mikhed, Petr Zemcik
Testing for Bubbles in Housing Markets: A Panel Data Approach
OCTOBER 2007

339. Magdalena Morgese Borys, Roman Horvath
The Effects of Monetary Policy in the Czech Republic: An Empirical Study
SEPTEMBER 2007

340. Juraj Stancik
Horizontal and Vertical FDI Spillovers: Recent Evidence from the Czech Republic
SEPTEMBER 2007

341. Lenka Drnakova
Determinants of Secondary School Choice in the Czech Republic
SEPTEMBER 2007

342. Michal Mravec
Understanding the Lack of Competition in Natural Gas Markets: The Impact of Storage Ownership and Upstream Competition
SEPTEMBER 2007

343. Jung Hun Cho
Self-Reputation and Perception of Reputation
NOVEMBER 2007

344. Olga Aslanidi
Determinants and Effectiveness of Foreign Exchange Interventions: New Evidence from Georgian Data
NOVEMBER 2007

345. Stepan Jurajda, Katherine Terrell
Regional Unemployment and Human Capital in Transition Economies
DECEMBER 2007

346. Silvester van Koten
Legally Separated Joint Ownership of Bidder and Auctioneer: Illustrated by the Partial Deregulation of the EU Electricity Markets
DECEMBER 2007

347. Ondrej Rydval, Andreas Ortmann, Michal Ostatnický
Three Very Simple Games and What It Takes to Solve Them
JANUARY 2008

348. Marián Dinga
The impact of territorially concentrated FDI on local labor markets: evidence from the Czech Republic
FEBRUARY 2008

349. Jan Hanousek, Evzen Kocenda, Ali M. Kutan
The Reaction of Asset Prices to Macroeconomic Announcements in New EU Markets: Evidence from Intraday Data
MARCH 2008

350. Michal Franta, Martin Guzi
Unequal Access to Higher Education in the Czech Republic: The Role of Spatial Distribution of Universities
MARCH 2008

351. Alena Bicakova, Jiri Slacalek, Michal Slavik
Labor Supply after Transition: Evidence from the Czech Republic
MARCH 2008

352. Junghun Cho
Sequential Cheap Talk from Advisors with Reputation
JUNE 2008

353. Jan Babecky, Fabrizio Coricelli, Roman Horvath
Assessing Inflation Persistence: Micro Evidence on an Inflation Targeting Economy
JUNE 2008

354. Michal Bresky
Properties of Equilibrium Strategies in Multiple-Unit, Uniform-Price Auctions
MAY 2008

355. Andreas Ortmann, Sergey Slobodyan
(The Evolution of) Post-Secondary Education: A Computational Model and Experiments
JUNE 2008

356. Maksim Yemelyanau
Inequality in Belarus from 1995 to 2005
JUNE 2008

330. Jan Bena, Stepan Jurajda
Which Firms Benefit More from Financial Development?
JUNE 2007

357. Ashot Tsharakyan
The Effect of Mortgage Origination Fees on the Housing Price Dynamics
AUGUST 2008

358. Branislav Saxa
Learning-by-Exporting or Managerial Quality? Evidence from the Czech Republic
AUGUST 2008

359. Levent Çelik
Strategic Informative Advertising in a Horizontally Differentiated Duopoly
SEPTEMBER 2008

360. Jan Hanousek, Filip Palda
Tax Evasion Dynamics in the Czech Republic: First Evidence of an Evasional Kuznets Curve
SEPTEMBER 2008

361. Jan Myslivecek
Comparing Certification and Self-regulation
SEPTEMBER 2008

362. Levent Çelik
Monopoly Provision of Tune-ins
SEPTEMBER 2008

363. Levent Çelik
Viewer Sampling and Quality Signaling in a Television Market
SEPTEMBER 2008

364. Jan Myslivecek
How to Price Imperfect Certification
SEPTEMBER 2008

365. Frantisek Kopriva
Source of Information-Driven Trading on the Prague Stock Exchange
SEPTEMBER 2008

366. Olga Aslanidi
Dollarization in Transition Economies: New Evidence from Georgia
SEPTEMBER 2008

367. Tomas Konecny, Jan Myslivecek
Fair Trade – Is It Really Fair?
SEPTEMBER 2008

368. František Brázdík, Juraj Antal
Macroeconomic Stabililty: Transition Towards the Nominal Exchange Rate Stability
OCTOBER, 2008

369. Krešimir Žigič
Stackelberg Leadership with Product Differentiation and Endogenous Entry: Some Comparative Static and Limiting Results
OCTOBER 2008

XI. LIST OF CERGE-EI POLICY BRIEFS

All Policy Briefs are available at http://www.cerge-ei.cz/publications/policy_briefs/

1. Sergey Kadochnikov, Pavel Essine, Sergey Slobodyan
What forces Russian firms to increase product variety: FDI or Competition from Import?
JULY 2003

2. Elena Kozakova, Stepan Jurajda
Wages in a growing Russia: When is a ten percent rise in the gender pay gap good news?
JUNE 2004

3. Sergey Kadochnikov, Pavel Essine, Sergey Slobodyan
What explains the product differentiation of Russian companies: competitive pressure or technological spillovers?
JUNE 2004

4. Sergey Slobodyan, Viatcheslav Vinogradov
Linking Education and Pensions in Transition: A Comparative Study
JULY 2004

5. Viatcheslav Vinogradov
Worker Flows and Education-Specific Human Capital Mismatch in the Czech Republic and Russia: A Comparative Study
JULY 2004

6. Andrey Timofeev
Fiscal Decentralization and Government Subsidies
SEPTEMBER 2005

7. Jiri Podpiera
Sources of Real Convergence in Emerging Markets
DECEMBER 2005

8. Libor Dusek
Crime,Deterrence,and Democracy. Weaker police was a major factor behind the rapid growth in crime after 1989
DECEMBER 2005

9. Jan Bena, Jan Hanousek
Rent Extraction by Large Shareholders: Evidence Using Dividend Policy in the Czech Republic
APRIL 2006

10. Stepan Jurajda, Daniel Munich
Admission to Selective Schools, Alphabetically
AUGUST 2008

11. Marian Dinga
The Impact of Territorially Concentrated FDI on Local Labor Markets: Evidence from the Czech Republic
OCTOBER 2008

12. Silvester van Koten, Andreas Ortmann
The Unbundling Regime for Electricity Utilities in the EU: A Case of Legislative and Regulatory Capture?
OCTOBER 2008

UPCES

Undergraduate Program in Central European Studies

CHARLES UNIVERSITY, PRAGUE, CZECH REPUBLIC

Academic Excellence

UPCES was launched in 2001 with the intention of being the most distinguished undergraduate academic program of its kind in Central Europe. It is located at CERGE-EI in Prague, a renowned center for economic graduate education with an academic reputation unparalleled in Central and Eastern Europe.

CERGE-EI offers fully accredited degrees under the authority of the New York State Board of Regents and the Ministry of Education of the Czech Republic. In addition, the Faculty of Humanities of Charles University, a partner with the UPCES program, is accredited by the Ministry of Education of the Czech Republic.

UPCES students have a unique opportunity to interact with other students since UPCES courses are cross-listed through the School of Humanities. This creates classes that are a mix of European and North American students.

Students from a wide variety of majors and interests benefit from what UPCES has to offer. The undergraduate program is offered as a one-semester option or as a two- semester (year-long) option. There are two day-trips within the Czech Republic as well as a long weekend trip abroad so students can explore and learn about life beyond Prague. Students have access to the extensive CERGE-EI Library which has served since 1994 as the depository for the World Bank and since 2002 as the depository Library of the United Nations Conference on Trade and Development (UNCTAD). The UPCES teaching faculty is comprised of the top figures in higher education in the Czech Republic and all courses are taught in English. Detailed information on the program, courses and professors can be found on the website www.cerge-ei.cz/abroad, including a downloadable brochure and application form.

Eligible students must have proven academic abilities and a demonstrated interest in the social sciences. Generally, the admissions committee expects a GPA level of 3.0. Students must have completed at least four semesters of university-level work. Students who apply before their junior year should provide clear and compelling reasons for early application. Students from Central and Eastern European countries are potentially eligible for tuition waivers and financial support that cover both tuition and living expenses. It is mandatory that all CEE students have excellent proficiency of the English language, both written and verbal.

UPCES Contact information:

Office of International Academic Programs
CERGE-EI, Politických vězňů 7
111 21 Prague 1, Czech Republic
Phone: +420 224 005 201
E-mail: intl.progs@cerge-ei.cz

CERGE-EI Library

The CERGE-EI Library, established in 1992, has grown into a rich resource of economic literature and electronic information services. Since November 1994 it has also offered its services to the public. Today it is considered as one of the best libraries of its kind in Central and Eastern Europe.

Library Collections

The Library offers over 90,000 volumes: monographs, journals, statistics, reference materials, doctoral theses, and grey literature (working and discussion papers of leading world academic and scientific institutions of economics) arranged in open stacks and in stockrooms, and searchable through an electronic catalogue.

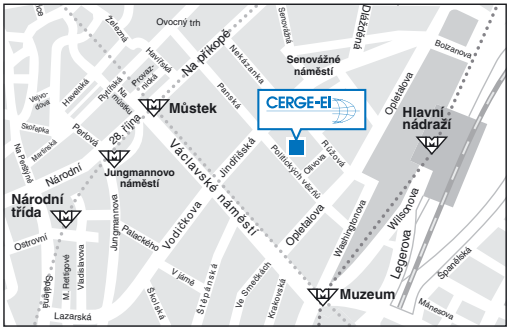
The main part of the collection is in the English language and reflects the teaching schedule, the research fields and programes of CERGE-EI.

Since 1994 the Library has been designated by the World Bank as an official depository library for World Bank publications and since 2002 the Library has served as the depository Library of the United Nations Conference on Trade and Development (UNCTAD).

CERGE-EI

Contact information:
CERGE-EI Library
Politických vězňů 7, 111 21 Praha 1
Czech Republic
Tel.: (+420) 224 005 145
e-mail: library@cerge-ei.cz
www.cerge-ei.cz/library/

Opening hours for public:
Mon–Fri: 10 a.m.–7 p.m.
Sat: 11 a.m.–3 p.m.



USAID
FROM THE AMERICAN PEOPLE

CZECH REPUBLIC 2008

Strong Currency, No Rush Toward the Euro

Editors: Alena Bičáková and Peter Katuščák

Authors: Ilkin Aliyev, Jan Babecký, Alena Bičáková, František Brázdik, Petra Brhlíkova, Georgi Burlakov, Marián Dinga, Vilma Dingová, Libor Dušek, Martin Gregor, Dana Hájková, Jan Hanousek, Eva Hromádková, Štěpán Jurajda, Peter Katuščák, Michal Kejak, Evžen Kočenda, Luboš Komárek, Zlatuše Komárková, Tomáš Konečný, František Kopřiva, Jana Krajčová, Ali M. Kutan, Lubomír Lízal, Nargiza Maksudova, Daniel Münich, Peter Ondko, Filip Palda, Filip Pertold, Zuzana Prelcová, Branislav Saxa, Vilém Semerák, Anastasiya Shamshur, Natalia Shestakova, Katarína Svítková, Petr Zemčík, Alena Zemplinerová

Editorial assistants: Robert Menkyna, Alexandra Prokosheva, Silan Teymurtas

Published by: Charles University in Prague – CERGE
The Economics Institute of the Academy of Sciences of the Czech Republic
Politických vězňů 7, 111 21 Prague 1

ISBN 978-80-7343-176-1 (Univerzita Karlova, Centrum pro ekonomický výzkum a doktorské studium)
ISBN 978-80-7344-165-4 (Národohospodářský ústav AV ČR, v. v. i.)

CERGE-EI
NADACE

The Foundation's Mission is to provide support and encourage the further development of economic education and research.

History and Current Activities of Nadace CERGE-EI

Nadace CERGE-EI was founded in 1991 to support CERGE-EI – a joint workplace of Charles University in Prague and the Academy of Sciences of the Czech Republic – though its activities have expanded beyond the original goal of the founders. Nadace CERGE-EI offers support of economic education and research, cooperating with a number of institutions both in the Czech Republic and abroad which support the same goals.

Types of Projects

Support of economic education at CERGE-EI

Student Stipends

Student study visits abroad

Support for Professors (Chaired Professorships)
- Visiting Faculty
- Local Faculty

CERGE-EI Library

Publications

Projects supported from the interest yields of the Czech government's Foundation Investment Fund

For institutions located in the Czech Republic

Topics of recent public calls for projects / proposals:
- Czech Republic and the European Union
- Macroeconomics / Monetary and Fiscal Policy
- Microeconomics / Transition Economics / Privatization and Enterprise Restructuring
- Financial and Capital Markets
- Labor Economics / Social Policy

Projects intended for the whole CEE region

Key goal is to assist in the dissemination of economic education and research.

Projects:
1) Support of international conferences and seminars
2) Travel Fund for young students and researchers

Foundation's Independent Projects

Organizing roundtable / panel discussions and seminars

Publications

Contacts:

Address:	Nadace CERGE-EI Politických vězňů 7 P. O. Box 882 111 21 Prague 1 Czech Republic
Telephone:	+420 224 005 143 +420 224 005 164
Fax:	+420 224 005 185
E-mail:	nadace@cerge-ei.cz
www:	www.cerge-ei.cz/nadace

Ph.D. and M.A. in Economics at CERGE-EI

Located in Prague | Accredited in the United States

- A program run jointly by Charles University in Prague and the Academy of Sciences of the Czech Republic
- A multinational community – faculty and students from about 30 countries
- All instruction in English
- Most CERGE-EI students spend part of their studies at universities abroad
- Graduates are regularly offered high-level positions at western universities, international organizations, central banks, financial institutions, and multi-national consulting firms
- Most students are granted tuition waivers and stipends
- Distance Learning Program provided for increasing chances of being admitted

Further information and application forms can be found at **www.cerge-ei.cz**

CERGE-EI

CERGE-EI
Student Affairs Office
P.O.Box 882, Politických vězňů 7
111 21 Prague 1,Czech Republic
tel.: (+420) 224 005 161
fax: (+420) 224 005 247
e-mail: grad.stud@cerge-ei.cz

ISBN 978-80-7343-176-1
ISBN 978-80-7344-165-4
9 788073 431761