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Slawomir I. Bukowski*

GERMANY, JAPAN AND INTERNATIONAL PAYMENT IMBALANCES

Abstract

International payment imbalances are usually discussed in the context of the U.S. – China relations. However, it is worth noticing that apart from China also Germany and Japan and many other countries (mainly raw-material exporters, such as Russia, Saudi Arabia, etc.) belong to surplus countries. Germany and Japan are characterized by specific features among which high international competitiveness in comparison to other countries prevails. It is their competitiveness that accounts for their success and their vital role in international payment imbalances both in the EU and globally.

Introduction

International payment imbalances are one of the crucial problems in modern global economy.

K. Lutkowski writes about payment imbalances in the USA – East Asia – Europe triangle. According to him it is „a kind of triangle whose sides stand for the directions of the largest capital and trade flows in the world" (Lutkowski 2006, p. 425). Usually this phenomenon is discussed in the context of relationships between the United States and China. It must be noted, however, that payment imbalances appear also in the relationships between Germany and the United States, and Germany and the majority of the EU countries (including the euro area), as well as between Japan and the United States, and Japan and the EU countries.

* Prof., Ph.D., The Department of International Business & Finance, Kazimierz Pulaski University of Technology and Humanities in Radom, s.bukowski@pr.radom.pl

In view of the above said a question can be posed about the causes of international payment imbalances in the relationships between Germany and Japan on the one hand and the United States and the majority of the EU countries on the other.

Concept and causes of international payment imbalances

International payment imbalance indicates a long-term current account imbalance and possibly the balance of payments imbalance (the positive balance of official reserves) between a given country (region) and other countries (regions).

The literature on the subject offers numerous hypotheses accounting for the causes and mechanism of international payment imbalances in the relationships between the United States – Asian countries – EU countries. The ones which deserve a mention are: the „Bretton Woods II" hypothesis, the global savings glut hypothesis, the global investment drought hypothesis, the negative US savings rate hypothesis, the Asian 1990s crisis effect hypothesis, the hypothesis of shocks affecting relative investment attractiveness of economic areas, the hypothesis of the optimal level of the current account deficit in the intertemporal approach, the hypothesis of changes in the asset and liability valuations and differences in return rates, and theories questioning correctness of imbalance measurements. A paper by K. Rybiński contains a very good overview of these hypotheses and theories and their critical analysis (Rybiński 2006). Discussing them here does not seem justified as this has already been done by the quoted author. The critical analysis of the international payment imbalance hypotheses and theories can also be found in K. Lutkowski's paper (Lutkowski, 2006, p. 448).

Among the causes of international payment imbalances the following are listed: on the one hand – low savings and high levels of consumption in the United States; on the other hand – low domestic absorption and low consumption levels at growing savings in China and other East Asian countries as well as poorly developed financial markets in the latter making investment of amassed savings difficult. Consequently, on the one hand we deal with growing US current account deficit, on the other hand – with the inflow of capital in the form of portfolio investments (mainly in American treasury bonds, but also in shares of American companies) and direct investments in the United States. In the literature on the subject one can easily find opinions that „Capital does not flow to the United States because it is „sucked in" there by some kind of lack of savings (because to put the record straight, there is no such lack), but it is directed there because it is attracted by the advantages of that place"(Lutkowski 2006, p. 449). American economy is particularly attractive for investors from Asian and oil countries and partly for some European countries on account of its specific qualities: high competitiveness, economic freedom, spirit of entrepreneurship, protection of the right of ownership,

high development of technology, labor mobility, market flexibility and relatively dynamic economic growth as for a highly developed country. All these account also for the credibility of the American dollar despite its exchange rate fluctuations in the last decade. It is also important that the American debt is entirely denominated in dollars. Approximately 80% of official foreign exchange reserves of central banks worldwide are also kept in dollars (Lutkowski 2006, p. 425).

On the other hand, in the European Union we deal with the division into countries indicating a current account surplus and those indicating a current account deficit. The main surplus country is Germany, a country where the current account surplus in transactions with the rest of the world, including also the EU countries, has been maintained with some short intervals since the so called „economic miracle" of the 1960s. It seems that the key to the explanation of this phenomenon is a relatively high rate of domestic savings in comparison to other highly developed countries as well as high international competitiveness of German economy. A relatively high fiscal discipline should be added to all the previously mentioned factors.

The high level of international competitiveness appears to be one of the crucial factors in achieving a long-term surplus in the current account by Japan. Another crucial factor is also a tendency for saving and a relatively lower than in other countries consumption and demand for imports.

Position of Germany and Japan, as surplus countries, in world economy

For many years, Germany has indicated a current account surplus in transactions with the rest of the world and EU-27 countries. A similar situation has been noted in Japan (see: Table 1, Fig. 1).

Within the framework of the European Union Germany holds a position of a surplus country, like Austria, the Netherlands, Finland and Sweden. The main reason for this is the high international competitiveness of these countries' economies and their exports. This refers in particular to Germany. In the Global Competitiveness Report 2010-2011, Germany is ranked 5th for its international competitiveness, just behind Switzerland, Sweden, Singapore and the United States and ahead of such countries as Finland, the Netherlands, Denmark and Austria (the latter is ranked 18th)[1]. The factors that contribute to this are a relatively high position in economic freedom ratings (at 23rd position)[2], relatively stable economy and economic policy and, in particular, a relatively high level of fiscal discipline.

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[1] See: Global Competitiveness Report 2010-2011, Klaus Schwab, World Economic Forum, Geneva Switzerland 2010.

[2] See: www.heritage.org/index/ranking.

Table. 1. Balance of the EU, US and Japan's current account with the rest of the world in the years 1999-2009 (millions, EUR)

Country/year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Belgium	:	:	:	12430	19670	19059	7854	6318	5427	-6539	2858
Bulgaria	-619	-757	-1106	-928	-1504	-1310	-2705	-4647	-7756	-8191	-3477
Czech Republic	-1378	-2961	-3654	-4442	-5028	-4650	-1345	-2745	-4090	-962	-1465
Denmark	3123	2443	5609	4590	6500	5939	9008	6515	3093	6194	7929
Germany	-25176	-35235	425	42972	40918	102832	114630	150106	185137	166963	117263
Estonia	-230	-325	-376	-760	-986	-1095	-1115	-2053	-2721	-1568	628
Ireland	573	52	-756	-1295	-2	-867	-5690	-6304	-10124	-10169	-4853
Greece	-4801	-10624	-10580	-10201	-11266	-10718	-14744	-23748	-32577	-34798	-25814
Spain	-16965	-24948	-26823	-23765	-27476	-44164	-66861	-88313	-105267	-105973	-58298
France	35309	17702	25702	15353	7013	8940	-8325	-10345	-18913	-37117	-36790
Italy	7694	-6345	-713	-10041	-17337	-13036	-23639	-38336	-37713	-46001	-31678
Cyprus	-159	-535	-351	-418	-266	-635	-800	-1006	-1865	-2974	-1279
Latvia	-608	-412	-707	-653	-814	-1439	-1626	-3603	-4710	-3014	1598
Lithuania	-1127	-738	-640	-772	-1116	-1393	-1482	-2551	-4149	-4227	1128
Luxembourg	:	:	:	2526	2103	3255	3495	3516	3784	2087	2549
Hungary	-3532	-4353	-3568	-4923	-5936	-6832	-6378	-6829	-6965	-7747	-404
Malta	-118	-533	-165	108	-138	-269	-421	-472	-304	-328	-399
Netherlands	14664	7844	10911	11582	26153	36917	37275	50436	38427	25371	26156
Austria	-3325	-1530	-1754	5871	3776	4842	4916	7105	9619	13757	7976
Poland	-14334	-11189	-6642	-5919	-4880	-8165	-3020	-7443	-14701	-17399	-6752
Portugal	-9665	-13167	-13879	-11574	-9230	-12432	-15924	-17186	-17075	-21699	-17261
Romania	-1352	-1497	-2491	-1618	-2877	-5102	-6876	-10220	-16758	-16178	-4933
Slovenia	-661	-579	38	250	-195	-717	-498	-772	-1646	-2490	-526
Slovakia	-1084	-763	-1951	-2052	-249	-1156	-3242	-3636	-2912	-4279	-2023
Finland	7638	10723	11983	12692	7511	9969	5697	7553	7650	5375	4696
Sweden	10054	10719	10826	13140	19801	21091	20430	26478	28859	29361	21848
UK	-33099	-42399	-34065	-29667	-26162	-36941	-48017	-64350	-55276	-27219	-26944
Belgium-Luxembourg	18142	18341	16939	:	:	:	:	:	:	:	:
United States	-283817	-453949	-443885	-483253	-460791	-507011	-603703	-638720	-525462	-454811	-270599
Japan	107591	129222	97842	119978	120335	138546	133259	136007	154040	105120	101560
All countries of the world	-94133	-165107	-168349	-104216	-19010	41745	69390	189738	271022	210276	224507

Source: compiled by the author on the basis of the EUROSTAT data
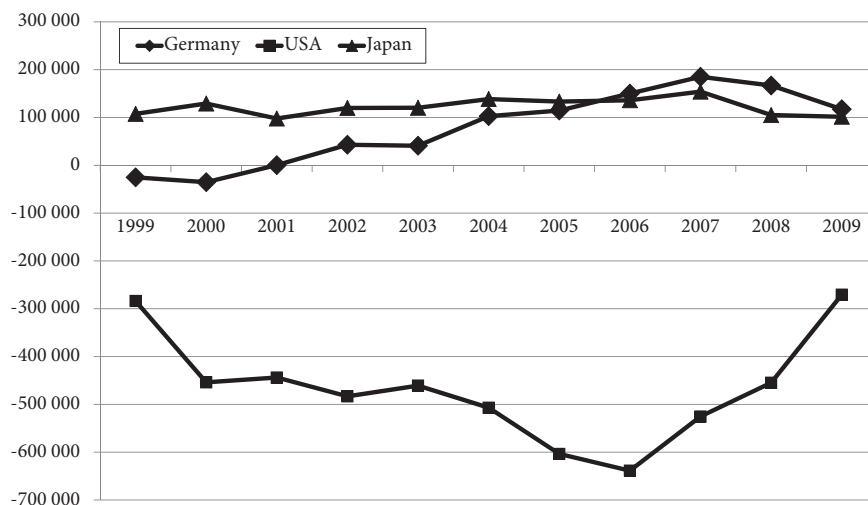
Fig. 1. Current account balance for Germany, US and Japan with the rest of the world in the years 1999-2009 (millions, EUR)

Source: compiled by the author on the basis of data included in Table 1.

German economy is also characterized by a high level of innovation, which is reflected in the share of high-tech goods in exports (See: Table 2).

Table. 2. Exports of high – tech products in EU countries and top EU trade partners – share of global high-tech product exports in the years 2007-2008 (SITC, including exports within the EU) (%)

Country/year	2007	2008
Belgium	1.406	1.549
Bulgaria	0.032	0.039
Czech Republic	0.852	1.003
Denmark	0.593	0.605
Germany	**8.445**	**8.689**
Estonia	0.042	0.045
Ireland	1.539	1.475
Greece	0.055	0.072
Spain	0.528	0.566
France	4.229	4.753
Italy	1.476	1.546
Cyprus	0.010	0.015
Latvia	0.019	0.023

Table 2. Cont'd

Country/year	2007	2008
Lithuania	0.062	0.074
Luxembourg	0.357	0.431
Italy	1.003	1.061
Malta	0.072	0.063
Netherlands	4.954	4.980
Austria	0.895	0.949
Poland	0.210	0.352
Portugal	0.165	0.165
Romania	0.070	0.129
Slovenia	0.068	0.086
Slovakia	0.144	0.166
Finland	0.776	0.807
Sweden	1.151	1.199
UK	3.495	3.356
Norway	0.220	0.282
Switzerland	1.706	2.012
Russia	0.213	0.264
Canada	1.547	1.463
United States	**11.640**	**12.047**
Mexico	1.627	2.082
Brazil	0.468	0.256
China (excluding Hong Kong)	**16.859**	**18.367**
Hong Kong	6.067	6.914
Japan	**6.315**	**6.136**
Indonesia	0.248	0.263
South Korea	5.146	:
Malaysia	2.270	2.055
Philippines	1.275	1.166
Singapore	5.430	5.957
Thailand	1.598	1.569
India	0.295	0.370
Israel	0.154	0.463
Other Asian countries	2.900	2.897
Australia	0.182	0.210

Source: compiled by the author on the basis of the EUROSTAT data.

Japan, like Germany, has a status of a surplus country in the world economy (see: Table 1 and Fig. 2). Again the main factor contributing to this status is the high international competitiveness of Japanese economy in comparison to the

rest of the world (6 position in the Global Competitiveness Report 2010-2011 ranking[3]) despite economic stagnation observed since the beginning of the 21st century and during the 2008-2009 recession.

Japan also belongs to economies characterized by considerable innovation and a high share of high-tech products in global exports of high-tech products. It is also noteworthy that high-tech exports constitute a significant share in total exports of Germany and Japan (see: Table 3).

Table. 3. Exports of high-tech products as a share of total exports of EU-27 and selected countries in the world in the years 2007-2008 (%)

Country/year	2007	2008
European Union – 27	15.965	15.363
Belgium	6.627	6.796
Bulgaria	3.49	3.573
Czech Republic	14.128	14.142
Denmark	11.689	10.752
Germany	**12.988**	**12.439**
Estonia	7.812	7.491
Ireland	25.732	24.282
Greece	4.737	5.878
Spain	4.238	4.162
France	15.569	16.365
Italy	6.002	5.95
Cyprus	14.64	19.089
Latvia	4.617	4.632
Lithuania	7.338	6.518
Luxembourg	32.403	35.211
Hungary	21.358	20.238
Malta	47.825	44.993
Netherlands	18.278	16.16
Austria	11.112	10.838
Poland	3.04	4.271
Portugal	6.523	6.127
Romania	3.504	5.402
Slovenia	4.621	5.192
Slovakia	4.997	4.831
Finland	17.519	17.331

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[3] See: Global Competitiveness Report 2010-2011, Klaus Schwab, World Economic Forum, Geneva Switzerland 2010.

Table 3. Cont'd

Country/year	2007	2008
Sweden	13.844	13.535
UK	16.173	15.113
Iceland	1.644	1.634
Norway	3.276	3.284
Switzerland	20.148	20.766
Russia	1.226	1.168
Canada	7.479	6.647
United States	**20.344**	**19.185**
Mexico	:	14.776
Brazil	5.914	2.674
China, excluding Hong Kong	**28.13**	**26.614**
Hong Kong	35.285	38.657
Japan	**17.963**	**16.255**
South Korea	28.15	:
Singapore	36.865	36.47
Thailand	21.147	18.462
Israel	5.771	15.611
Australia	2.661	2.327

Source: compiled by the author on the basis of the EUROSTAT data.

The positive current account balance of Germany and Japan in transactions with the rest of the world is accompanied by the negative financial account balance (see: Table 4 and Fig. 2).

It is connected with considerable foreign direct investments and portfolio investments of both countries. One of the areas of large direct investments for both countries is the United States. Direct investment balances for both countries in transactions with the United States are positive and fairly high (see: Figure 3). During the 2007-2009 recession, the positive balance of German direct investments in relationships with the United States was maintained at an almost unchanged level, whereas in the case of Japan it increased significantly.

Japan and Germany are also among the main holders of the US government's treasury securities. It must be mentioned that as far as the value of the owned treasury securities is concerned, Japan holds the second position, just behind China, whereas Germany is the fourteenth (see: Table 5).

Table. 4. Financial account balance for the EU countries, US and Japan in transactions with the rest of the world in the years 1999-2009 (millions, EUR)

Country/year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Belgium	:	:	:	:	:	-8006	-7304	-5988	-5829	9562	-3896
Bulgaria	635	827	330	1129	967	883	3409	5298	10512	10735	2844
Czech Republic	1349	3294	3103	4244	4515	5421	2092	3206	3967	878	1427
Denmark	-374	3429	-9437	-2079	-6288	-13949	-7220	-2090	-2997	-403	-5284
Germany	-10395	34186	-11794	-38448	-61758	-122985	-129634	-175473	-219502	-197330	-129649
Estonia	377	302	352	735	976	1161	915	1910	2398	1261	-911
Ireland	:	:	-319	1068	-1371	3801	-487	4770	12051	16132	-3315
Greece	4730	8907	6933	10303	9885	8100	12611	20453	27570	29914	24396
Spain	11328	19476	21702	15381	17825	34851	60817	85625	101005	101976	57580
France	-36900	-31098	-33100	-20603	9710	-7837	-1589	25958	30296	26630	59444
Italy	-8817	4233	-3421	8512	17319	9025	20901	25404	26212	29733	24447
Cyprus	:	:	257	468	216	416	592	987	1902	2936	1365
Latvia	622	455	660	704	752	1302	1700	3311	4468	3083	-2191
Lithuania	1163	602	462	550	914	1018	1257	2499	3678	3674	-2036
Luxembourg	:	:	:	-2668	-1961	-2808	-4365	-3191	-3519	-1825	-2271
Hungary	3857	4243	3180	4564	5763	7942	7485	7880	6537	9286	-590
Malta	152	492	-127	-49	96	133	300	313	306	348	130
Netherlands	-4959	-13096	1230	6180	-20728	-36347	-30307	-53471	-25109	-7327	-36995
Austria	6590	4647	4154	-2665	-527	-643	-240	-7944	-11503	-14966	-4678
Poland	:	10389	4039	6971	6590	5985	5745	8429	18816	28535	15309
Portugal	8328	11765	12264	9390	6327	10073	14004	15301	14423	19121	15423
Romania	402	1371	1565	2403	2983	3706	5977	9403	16781	17662	5581
Slovenia	623	533	-143	164	208	794	1084	1223	1972	2572	229
Slovakia	929	635	1674	1621	209	1070	2778	3018	2425	5107	3525
Finland	-4891	-9897	-12758	-7476	-7626	-8318	-2781	-6383	98	9135	11011
Sweden	:	:	:	:	:	-22927	-23723	-25143	-6636	15008	-8180
UK	44957	37946	44213	38277	31713	43605	42776	55972	46301	18372	34653
Belgium-Luxembourg	:	:	:	:	:	:	:	:	:	:	:
United States	226618	527254	447063	523183	470604	427515	573082	642147	469148	393342	148519
Japan	-107704	-136666	-99299	-117655	-102318	-112032	-116144	-107489	-164001	-138904	-114541
All countries of the world	61446	270427	211828	196151	48174	-129024	-88478	-163442	-242304	-182274	-171382

Source: compiled by the author on the basis of the EUROSTAT data.
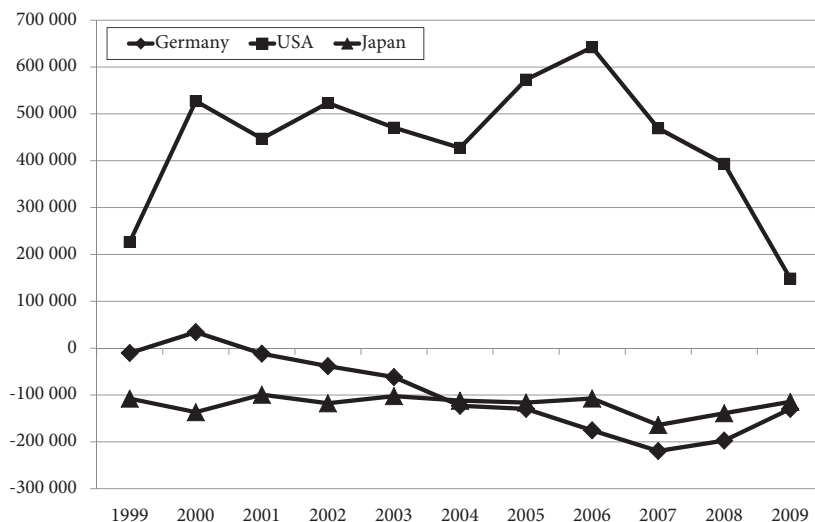
Fig. 2. Financial account balance for Germany, United States and Japan in transactions with the rest of the world in the years 1999-2009 (millions, EUR)

Source: compiled by the author on the basis of data included in Table 2.
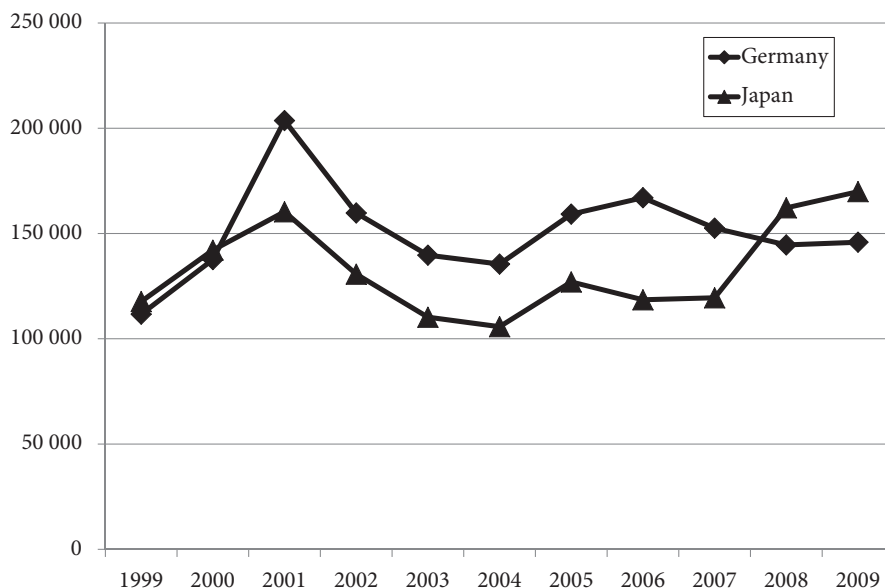

Fig. 3. Balance of direct investment account for Germany and Japan in transactions with the United States in the years 1999-2009 (millions, EUR)

Source: compiled by the author on the basis of the EUROSTAT data.

Table. 5. Major foreign holders of US government's treasury securities in the years 2009-2010 (as of end of the month)

Country/year	2009 November bn USD	Share %	2010 November bn USD	Share %
China	929.0	25.3	895.6	20.6
Japan	**754.3**	**20.6**	**877.2**	**20.2**
UK	155.5	4.2	511.8	11.8
OPEC countries	202.6	5.5	210.4	4.8
Brazil	165.8	4.5	184.4	4.2
Caribbean bank centers	123.2	3.4	146.3	3.4
Hong Kong	142.1	3.9	138.9	3.2
Canada	50.7	1.4	134.7	3.1
Taiwan	115.4	3.1	131.1	3.0
Russia	151.4	4.1	122.5	2.8
Switzerland	89.6	2.4	100.6	2.3
Luxembourg	80.2	2.2	81.0	1.9
Thailand	29.6	0.8	65.7	1.5
Germany	**48.7**	**1.3**	**60.4**	**1.4**
Singapore	37.5	1.0	59.4	1.4
Ireland	43.1	1.2	42.1	1.0
South Korea	40.2	1.1	41.5	1.0
India	34.5	0.9	40.7	0.9
Total value of treasury securities owned by foreign investors	3669.0	1.0	4348.8	1.0

Source: compiled by the author on the basis of the data of the U.S. Bureau of Economic Analysis.

When compared to the United States, both countries are characterized by a higher share of gross domestic savings in GDP (see: Fig. 4). A drop in the share of gross domestic investments in German and Japanese GDP in the last decade accompanied by a growing share of savings in GDP must have been related to increased foreign direct investments in the US economy and portfolio investments of financial institutions the object of which were, among others, American treasury bonds (see: Fig. 5).

Germany and Japan are characterized by a gross public debt to GDP ratio higher than 60%. In the case of Japan this indicator considerably exceeds 100% (see: Table 6).
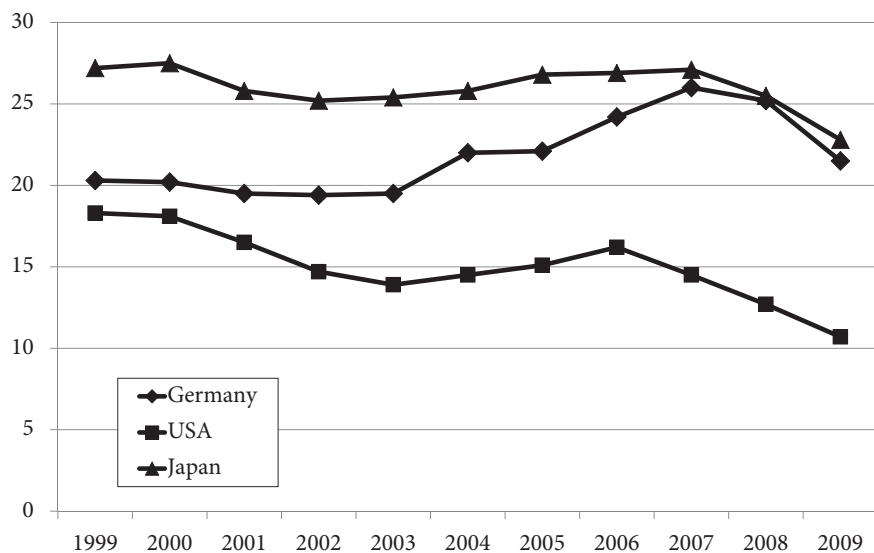
Fig. 4. Gross domestic savings as a percentage of GDP - Germany, Japan and the US in the years 1999-2009 (%)

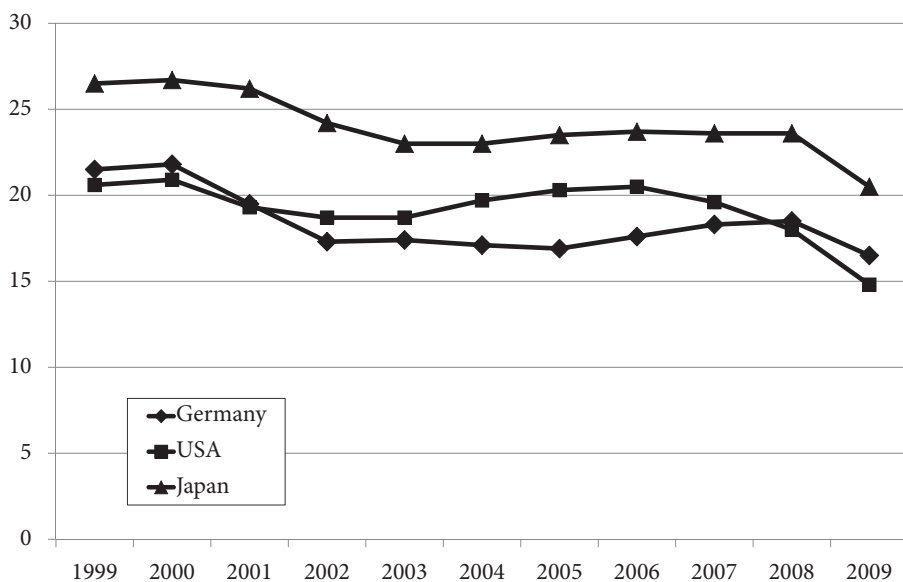Source: compiled by the author on the basis of the EUROSTAT data

Fig. 5. Gross investments as a percentage of GDP - Germany, United States and Japan in the years 1999-2009

Source: compiled by the author on the basis of the EUROSTAT data

Table. 6. Consolidated public sector balance sheet, public debt, the current account surplus/deficit as a percentage of GDP (%)

Country/Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Germany											
Public sector balance sheet	-1.7	1.3	-2.8	-3.7	-4.0	-3.8	-3.3	-1.6	0.2	0.0	-3.1
Public debt	60.9	59.7	58.8	60.4	63.9	65.7	68.0	67.6	64.9	66.3	73.5
Current account balance	-1.3	-1.7	0.0	2.0	1.9	4.7	5.1	6.5	7.6	6.7	4.9
Japan											
Public sector balance sheet	-7.4	-7.6	-6.3	-8.0	-8.0	-6.2	-4.8	-4.0	-2.4	-4.1	-10.2
Public debt	133.8	142.1	151.7	160.9	167.2	178.1	191.6	191.3	187.7	194.7	217.6
Current account balance	2.6	2.6	2.1	2.9	3.2	3.7	3.6	3.9	4.8	3.2	2.8
United States											
Public sector balance sheet	:	:	-0.3	-3.9	-4.9	-4.4	-3.2	-2.0	-2.7	-6.7	-12.9
Public debt	60.8	54.8	54.7	57.1	60.4	61.4	61.6	61.1	62.1	71.1	84.3
Current account balance	-3.2	-4.2	-3.9	-4.3	-4.7	-5.3	-5.9	-6.0	-5.1	-4.7	-2.7

Source: OECD data

Despite this, the economies of Germany and Japan are regarded as credible by investors who willingly invest in treasury bonds issued there. Both their economies and treasury bonds of these countries are assessed very well in S&P ratings (see: Table 7).

Table. 7. Standard & Poors rating– Germany, Japan, United States and China in January 2011

Country	Domestic rating	Foreign rating	T&C Assessment
Germany	AAA	AAA	AAA
Japan	AA-	AA-	AAA
United States	AAA	AAA	AAA
China	AA-	AA-	AA-

Source:www.standardandpoors.com/ratings/sovereigns/ratingslist/en/us/?sectorName=Governments&subSectorCode=39&start=0&range=50

In spite of the fact that in the last decade in both countries public debt has increased in relation to GDP, they do not have problems with placement of new

bond issues in financial markets and German bonds are still treated as benchmark reference and are used for international comparisons.

As a result, when combined with considerable financial reserves, the position of the two countries in global economy, both in the sphere of real flows as well as financial ones, is unshakeable.

Conclusions

The preliminary analysis conducted in this work seems to confirm some research hypotheses.

Maintaining the current account surpluses by Germany and Japan in transactions with the rest of the world including the United States is a result of a high level of international competitiveness of both economies, including exports.

American economy is attractive for investors from both countries which is connected with a relatively high balance of foreign direct investments in transactions with the United States.

It seems unlikely for the situation of payment imbalances between Germany and Japan on the one hand and the rest of the world on the other to be dangerous either for the two countries in question or global economy. A payment imbalance between Germany and other EU countries has been noted for years. A similar situation has also been observed in the relationships between the Netherlands, Austria, Denmark and France (in some years) – and the remaining EU countries. Such a situation can be accounted for by differences in the international competitiveness levels among economies of the above mentioned countries and the remaining member countries, different stages of their economic advancement and differences in economic policy stability.

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Soultana (Tania) Kapiki*

THE IMPACT OF ECONOMIC CRISIS ON TOURISM AND HOSPITALITY: RESULTS FROM A STUDY IN GREECE

Abstract

The hospitality and tourism sector is experiencing numerous challenges as a result of the global economic crisis. After a significant contraction in 2009, tourism rebounded strongly in 2010 and in 2011 the international tourist arrivals and receipts are projected to increase substantially. The hospitality industry is expected to show a sustained recovery in 2012. The crisis has particularly strong impact and negative consequences in Greece. The country is undergoing a serious political crisis, as well, and it seems that the forthcoming elections are the only solution for the restoration of stability and social peace. In addition, tourism can be the driving force behind Greece's economic recovery. However, for its achievement the country's policy makers should take several measures towards restructuring and improving the sector. These measures include: enhancement of alternative forms of tourism; environmental protection; creation of quality infrastructure; and boost of competitiveness through a tourism product that offers value for money.

Introduction

There is no universally accepted definition of what constitutes a crisis and different writers present their own interpretations. However, it appears that three elements must be present: a triggering event causing significant change or having the potential to cause significant change; the perceived inability to cope with this change; and a threat to the existence of organizations (Keown-McMullan, 1997), as well as of tourists and members of the tourism industry (Henderson, 2006).

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* Alexander Technological Educational Institute of Thessaloniki, tkapiki@tour.teithe.gr

Every crisis is unique displaying a remarkable range and variety (Henderson, 2006), yet characteristics generally cited include unexpectedness, urgency and danger (Hermann, 1972). Tourism crises usually share these attributes although certain crisis situations can be predicted and lack immediacy.

Causes of many tourism crises can be traced to developments in the economic, political, sociocultural and environmental domains which affect demand and supply in generating and destination countries. Economic downturn and recession, fluctuating exchange rates, loss of market confidence and withdrawal of investment funds can all create a tourism crisis. Crises generated within the industry can also be analysed under the headings of economic, sociocultural and environmental when tourism has negative impacts in these fields (Henderson, 2006).

The external and internal threats of the economic crisis to the tourism industry are:

⇨ External threats: recession; currency fluctuations; and taxation.
⇨ Internal threats: rising costs; falling revenues; unprofitability (Sian et al., 2009).

Crises occur at all levels of tourism operations with varying degrees of severity, from much publicised environmental, economic and political disasters through to internally generated crisis such as accidents and sudden illness (Beeton, 2001).

The travel and tourism industry is susceptible to a wide range of internal and external forces and is impacted heavily by crisis events resulting in negative tourist perceptions (Pforr & Hosie, 2009).

Economic downturn can undermine demand and possibly result in crisis for industries in origin and destination countries if the slump is sufficiently intense or prolonged. The recession of the 1990s on the U.S. mainland contributed to decline Hawaii's tourism from 1990 to 1993 and Japan's economic difficulties had adverse consequences for its outbound tourism in the same decade, including travel to Hawaii (Sian et al., 2009).

In 1997 the world financial crisis that began in Asia and spread to Russia and Brazil in 1998 (Schifferes, 2007), as well as the falling currency values depressed demand for travel and investment in tourism (Henderson, 2006).

The U.S. hotel industry experienced an intense and immediate negative impact on occupancy, rate, and revenue per available room (RevPAR) in real dollars after the fall of Lehman Brothers on September 15, 2008 and the financial crisis that followed. Although the direct effects of the economic crisis decreased in about four months, occupancy rates continued to fall and remained low throughout 2009 and early 2010 (Enz et al., 2011).

The Impact of Economic Crisis on Tourism and Hospitality Worldwide

The current financial crisis that began in 2007 has created the greatest financial disorders since the Great Depression of the 1930s (Melvin & Taylor, 2009).

As with most industries, the hospitality and tourism sector is experiencing numerous challenges as a result of the global economic crisis. The industry is feeling the impact of a shrinking capital market and decreased spending by both corporate and individual consumers (Global Financial Crisis Bulletin, http://www.protiviti.com/).

Businesses have reported a downturn in sales of lodging, foodservice, events and other hospitality products and some have closed their doors forever. The decline resulted not only from fewer customers in hotels, restaurants, conference and convention centres, etc., but also from a significant decline in the average expenditure per guest (Pizam, 2009).

The recession caused serious problems for luxury hotels in particular. However, many hotels in certain global markets, especially those catering to leisure travellers, were less affected. And the popularity and growth of the luxury hotel segment in recent years suggests that a strong rebound may not be unrealistic (Barsky, 2009).

There were sharp differences in the performance of the various global regions in 2009 (http://www.unwto.org/media/news/en/press_det.php?id=5361). More specifi-cally:

⇨ Europe ended 2009 down 6%. Destinations in Central, Eastern and Northern Europe were particularly badly hit, while results in Western, Southern and Mediterranean Europe were relatively better.

⇨ Asia and the Pacific (-2%) showed an extraordinary rebound. The second half of 2009 saw a 3% growth, reflecting improved regional economic results and prospects.

⇨ In the Americas (-5%), the Caribbean returned to growth in the last four months of 2009.

⇨ The Middle East (-6%), though still far from the growth levels of previous years, had a positive second half in 2009.

⇨ Africa (+5%) was a strong performer, with sub-Saharan destinations doing particularly well (http://www.qfinance.com/sector-profiles/tourism-and-hotels).

The average price of a hotel room around the world was 14% cheaper in 2009 than in 2008, according to the Hotels.com Hotel Price Index. In fact, a hotel room was cheaper in 2009 than it was in 2004. Rooms cost 13% less in Europe during 2009 than in 2008, 14% less in the United States, 16% less in Asia and 21% less in Latin America. However, towards the end of 2009, the price falls started to stabilize.

According to the World Tourism Organization (UNWTO) the key trends in international tourism during 2010 were the following:

⇨ Worldwide, international tourism rebounded strongly, with international tourist arrivals up 6,6% over 2009, to 940 million.

⇨ The increase balanced the decline caused by the economic downturn, with an additional 23 million arrivals over the former peak year of 2008.

⇨ In 2010, international tourism receipts are estimated to have reached US$ 919 billion worldwide (693 billion euros), up from US$ 851 billion (610 billion euros) in 2009, corresponding to an increase in real terms of 4,7%.

⇨ As a reflection of the economic conditions, recovery was particularly strong in emerging economies, where arrivals grew faster (+8%) than in advanced ones (+5%).

⇨ The international tourist arrivals are projected to increase in 2011 by 4% to 5%.

In the DLA PIPER EU hospitality outlook survey (March 2011) the majority of respondents expect the hospitality industry to show a sustained recovery in 2012 and a return to pre-financial crisis levels in terms of room rates, largely due to a predicted growth in business travel. „Being Green" and having green accreditation is seen as important for increasing brand value by 57% of respondents and the use of energy-efficient materials is widely adopted and driven by individual green policies and rising energy costs. The EU hospitality and leisure sector is increasingly using social media as a promotional tool to enhance sales, marketing and public relations, although it is still behind the U.S. (http://www.dlapiperwin.com/).

The World Economic Forum published its Travel & Tourism Competitiveness Report 2011 under the theme „Beyond the Downturn," including the following findings: the Travel & Tourism (T&T) industry is slowly recovering from the Economic downturn, with the strong recovery being in emerging economies. The industry is looking for ways to develop new market segments and attract new customers. Indeed, T&T remains a critical economic sector worldwide, with the potential to provide economic growth and development internationally. A growing national T&T sector contributes to employment, raises national income and can improve the balance of payments. Thus, the sector is an important driver of growth and prosperity, and, particularly within developing countries, it can play a key role in poverty reduction, as well.

After a contraction of 4,2% 2009, according to the UNWTO, international tourist arrivals rose again in 2010 and have returned to their pre-crisis peak level, representing a growth of 5 to 6% over 2009; they are expected to return to the long-term average of 4% in 2011. The World Travel & Tourism Council (WTTC) estimates that, from direct and indirect activities combined, the T&T sector now accounts for 9,2% of global GDP, 4,8% of world exports and 9,2% of world investment, returning to the position it held before the crisis.

During the downturn, travellers became less engaged with the traditional sun-and-beach destination brands and looked instead for the best value in

a two-hour flight range. This has fuelled growth along the cheaper Mediterranean countries (e.g. Tunisia and Egypt) and left euro zone countries such as Spain, Greece, and Portugal coping with declining tourism traffic (World Economic Forum, 2011).

However, the political turmoil in the Middle East and North Africa at the end of 2010 and in the first months of 2011 has limited the tourism business sharply. As of mid May, 2011 tourist arrivals have declined sharply in Bahrain, Egypt, Jordan, Syria and Tunisia. According to the World Travel and Tourism Council, first quarter tourist arrivals in Egypt and Tunisia were off about 45% compared with the respective period of 2010.

Of course some of these tourist arrivals and tourism spending will show up as an increase in tourism in other countries – although for the moment data do not indicate which developing countries might be the most significant beneficiaries (World Bank, June 2011).

The Economic and Political Crisis in Greece

The Greek financial crisis is now entering in its third year and international stock markets are being affected. The Greek economy is in critical condition. The Greek financial situation has helped push down the value of the euro against the dollar, making a visit to Greece, or anywhere in the European Union (EU), relatively less expensive for Americans and other foreign visitors.

A new deal on 26 October 2011 restructures and cuts 50% of the debt, and probably means a better, more stable atmosphere in Greece as we move into 2012 (About.com Guide and examiner.com).

With the apposition of elements that is to follow, effort is made in order for the current situation of tourism in Greece to be determined.

The table 1 shows the evolution of basic figures and performance indicators of the Greek tourism for the years 2007, 2008, 2009 and 2010 (period of the global economic crisis).

Table. 1. Basic Figures of Greek Tourism for the Years 2007, 2008, 2009 & 2010

	Basic Figures & Performance Indicators	Year			
		2007	2008	2009	2010
Basic figures	Contribution to GDP	17,3%	16,5%	15,2%	15,3%
	Contribution to Employment	20,2%	19,3%	17,7%	17,9%
Performance indicators	Rank-Receipts	13th	12th	15th	21st
	International Tourism Receipts (bi.)	15,5 $	17,1 $	14,5 $	12,7 $
	Average per Capita Expenditure	956,8 $	1.075,5 $	973,2 $	846,7 $
	Market Share World-Receipts	1,8%	1,8%	1,7%	1,4%

Source: Adapted from Association of Greek Tourism Enterprises, 2011.

The above figures reveal that 2008 was a good year for the Greek tourism as it concerns the international tourism receipts (the highest tourism receipts Greece ever had) and the average per capita expenditure. Nevertheless, during the next two years (2009 and 2010) the impact of economic crisis on the Greek tourism figures is evident and resulted in the following negative rates:

> Drop in contribution to GDP 2007-2010: 2%
> Drop in international tourism receipts 2007-2010: 18,06%
> Drop in average per capita expenditure 2007-2010: 11,5%
> Drop in market share world-receipts 2007-2010: 0,4%

The figure 1 and table 2 below show the evolution of the turnover index in the Greek tourism sector for the period 2005-2010.
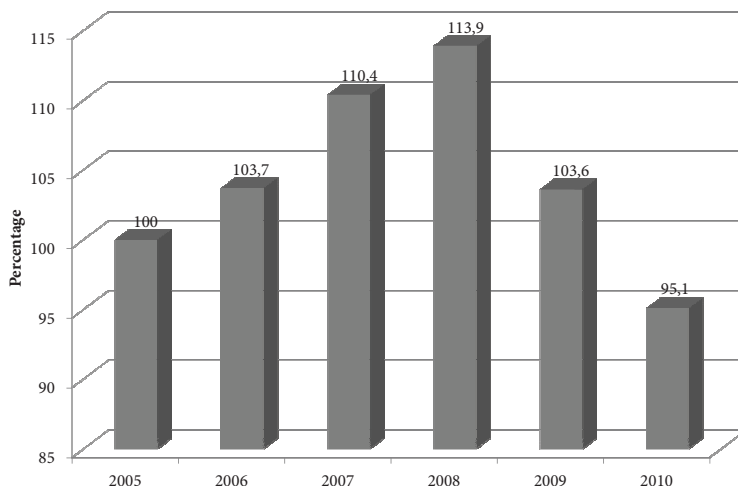
Fig. 1. Evolution of the Turnover Index in the Greek Tourism Sector (Base Year: 2005=100,0)

Source: Adapted from Hellenic Statistical Authority, 2011.

Table. 2. Evolution of the Turnover Index in the Greek Tourism Sector (Base Year: 2005=100)

Year	Index	Year on year growth rates (%)
2005	100	–
2006	103,7	3,7
2007	110,4	6,5
2008	113,9	3,2
2009	103,6	-9,1
2010	95,1	-8,2

Source: Adapted from Hellenic Statistical Authority, 2011.

Explanatory notes: the compilation of the turnover indices in the tourism sector comprises enterprises with year turnovers equal to or higher than 250.000 euros, represented by a sample of 158 enterprises. The turnover index in tourism sector covers the country total, for the „Accommodation and Food Service Activities" (Hellenic Statistical Authority, 2011).

The data above indicate that the turnover index in the tourism sector decreased by 9,1% in 2009 compared to 2008 and by 8,2% in 2010 compared to 2009.

Greece is ranked 21st in Europe and 29th overall, in the Travel & Tourism Competitiveness Index rankings 2011, down by five positions since 2009 (World Economic Forum, September 2011).

So far (November 2011), the tourism industry strengthened both in number of foreign arrivals and in terms of RevPAR (http://www.traveldailynews.com/), as well as of hotel occupancy development related to 2010 (European Tourism: Trends & Prospects, Q3/2011). Taking into account the serious recession Greece is facing nowadays, these developments are quite encouraging.

Tourism and politics have a close relationship in which domestic and international political conditions and developments shape tourism flows and environment in which the industry operates. Tourism also impacts on political structures and processes and it is a policy making area of importance to most governments which seek to fully exploit the economic opportunities, as well as the social and political uses it affords. However, government actions, ideologies and political events are capable of triggering a range of crises and political instability in a common catalyst (Sian, 2009).

It is well known that apart from the economic crisis, Greece is also undergoing a serious political crisis. The combination of the economic and political crisis creates an explosive mixture and the legitimacy of the political system is seriously questioned, as a significant part of the population identifies a democratic deficit in the management of the crisis and is confronted with a worrying image for the future (Lyrintzis, 2011).

The Greek political system is considered very fragile at the moment and it seems that the only way out of the crisis is the forthcoming elections which are expected to bring back stability, optimism, prosperity and social peace to the country.

And as a nation moves into reconciliation with peace and stability beginning to take root, tourism can provide a method to explore the healing process, rebuild societies and reconnect nations or cultures that were separated through conflict (Levy & Hawkins, 2010).

History has shown that Greece will manage to survive and the country will be able to make its way out of the deep economic and political crisis.

The Study

Tourism Profile of Thessaloniki[1] (results obtained from a research of GBR Consulting on behalf of the Thessaloniki Hotels Association. The research was conducted between August and October 2010 on a sample of approximately 600 hotel guests).

⇨ Nine out of ten of the city's hotel guests (88,9%) are ready to come back to Thessaloniki, as well as recommend it to others.

⇨ The visitors rate the city with 7,9 (out of 10) and nearly 40% of respondents have visited the city more than four times.

⇨ Approximately 47% of the sample said that they visited the city for „fun" (the answer for „business" was the next one).

⇨ In the question „what makes the city unique", the respondents state: people, nightlife, entertainment, atmosphere, hospitality, history, attractions, culture, food and the seafront.

⇨ The visitor to the city stays on average 4,49 days, spends a total of about 471,5 euros, for attractions – entertainment (81,33 euros), restaurants, cafes and bars (158,4 euros), purchases from stores (171,38 euros) and other activities (60,3 euros).

⇨ Foreigners spend more during their stay in Thessaloniki (506,8 versus 434,3 euros for the Greeks) and 84,2% of them consider that the city deserves another visit (94,5% for the Greeks).

⇨ The average hotel occupancy rate for the period November 2009-November 2010 did not exceed 50%, having decreased compared with 2009, when it reached 60%. At the same time, the indicators average room rate (ARR) and RevPAR decreased significantly in Thessaloniki compared with 2009.

Study into the Impact of Economic Downturn on the 5 Star Hotels of Thessaloniki

The study intended to identify the impact of the financial crisis on the 5 star hotels of Thessaloniki, Greece and how the annual occupancy rate, arrivals and overnight stays, as well as daily room rate, profitability and operating costs were affected.

Data was collected by means of a questionnaire developed specifically for the survey. The questionnaires were answered by the hotel executives in autumn 2011.

The basic characteristics of the surveyed hotels (twelve in total) are:

⇨ All the properties are 5 star hotels.

⇨ One of the hotels belongs to an international chain and the remaining eleven either belong to Greek hotel chains or they are individual properties.

⇨ All of them are managed directly by the ownership and not by third-party professional companies.

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[1] Thessaloniki is a historical and cultural city in North Greece. It is the second largest city in Greece and tourism is one of the city's major assets.

⇨ The hotels are located in both urban and suburban locations of Thessaloniki and are of various sizes and rates.

⇨ All the hotels offer food and beverage services.

Questions and Findings of the Survey

Questions	Findings
1. What types of guests visit your hotel?	① Businessmen/Merchants, ② Convention members, ③ Tourists, ④ Families/Couples
2. What was the average annual occupancy of your hotel during 2005-2008?	65%
3. What was the average annual occupancy of your hotel in the years 2009 and 2010?	63,3%
4. In the last two years (2009-2010), the number of arrivals at your hotel increased, declined or is it stable?	The number of arrivals has increased by 14% in ⅓ of the hotels, has declined by 15% in another ⅓ and it is stable in the remaining ⅓
5. What was the average per guest number of overnight stays during 2005-2008?	1,62 nights
6. In 2009-2010, the number of overnight stays increased, declined or is it stable related to 2005-2008?	In six hotels the number is stable, in four there is an increase and in two there is a decline
7. In 2009-2010, your profitability increased, declined or is it the same related to 2005-2008?	In six hotels there is a decline, in four the level is the same and in two there is an increase of 10%
7a. What are the main reasons for your increased profitability?	The quality of services and the competent staff members
7b. What are the main reasons for your decreased profitability?	The financial crisis and the increase of the cost of living
8. Are your total operating costs in 2009-2010 increased, declined or are the same related to 2005-2008?	In seven hotels the costs have increased, in four they have declined and in one they are stable
9. What was the average room rate, respectively, in 2005-2008 and 2009-2010?	110 euros and 101 euros, respectively
10. During 2009-2010 did you make any kind of investment in the hotel?	Eight hotels did not make any investment, whereas four of them made investments
10a. If yes, what kind of investment?	① Facilities improvement, ② advertising; staff recruiting & training; collaborations with other bodies (travel agents, restaurants, etc.)
10b. Do you think that your investment was profitable? If not, cite the reason(s).	From those hotels that made investments, only one believes it was profitable. The other hotels attribute the failure to: ① the financial crisis; ② the development of new hotels; ③ the decline in arrivals and rates
11. To overcome the economic crisis in hotels, what are in your opinion the measures to be taken by the state?	① Development in N. Greece ② Tourism advertising ③ Incentives for visitors ④ Tax reduction ⑤ Better services in the city (e.g. taxis, restaurants, shops, etc.) ⑥ Implementation of operational contracts
12. In order to increase the occupancy ratios and average rate per guest, what solutions do you think could be applied to your hotel?	Advertising & promotion of Thessaloniki in the tourism and convention market; qualitative guest services; continuous search for new ideas and products; hotel renovation & SPA creation.

Results of the Survey

By analysing and comparing the above findings with the research findings of GBR Consulting, we conclude that:

⇨ The average annual occupancy rate of the 5 star hotels in 2010 (63,3%) was higher than the occupancy rate of the city's total hotels (50%).

⇨ Despite the crisis, the occupancy rate in the 5 star hotels dropped only by 1,7% between the time periods 2005-2008 (before the downturn) and 2009-2010. The drop in the hotels of other classes was 10%.

⇨ The 5 star hotel guests stay only 1-2 nights, whereas the visitors to the city stay on average 4,49 nights.

⇨ The average room rate (ARR) and revenue per available room (RevPAR) dropped significantly in Thessaloniki compared with 2009. In the 5 star hotels, the drop was approximately 8%.

⇨ As to the arrivals and overnight stays in the 5 star hotels, it seems that on average their number has remained the same, compared to 2005-2008.

⇨ As expected, the profitability in the majority of the hotels has declined due to the financial crisis and the increase of cost of living. Nevertheless, two hotels managed to be profitable thanks to the quality of the services being offered and their competent staff members.

⇨ In the majority of the hotel sample the operating costs have increased. The increase is mainly due to the rising prices of oil, electricity and labour costs.

⇨ Most hotels did not make any, or, made some light investments over the last years, such as facilities improvement; advertising; staff recruiting and training; and collaborations with other bodies.

The main lesson that emerged from our survey is that the Greek hoteliers can survive a recession, by offering qualitative services, by preparing careful plans focused on guest and employee satisfaction, and by implementing a consistent pricing policy as well as an effective revenue management.

Conclusions

⇨ We live in an era characterized by a very serious economic crisis that began in the U.S. in 2007 and the continuous efforts made nationally and internationally to overcome this crisis.

⇨ As a result of the global economic crisis, the hospitality and tourism industry experienced a serious downturn in sales and profitability, especially during 2009. In 2010, tourism rebounded strongly and in 2011 the international tourist arrivals and receipts are projected to increase substantially.

⇨ Hotels in most parts of the world have experienced drops in occupancy, average daily rate and revenue per available room. The drop in demand has shifted considerable pricing power to the customer. Nevertheless, the luxury

hotels are less susceptible to the financial crisis due to the fact that the number of guests able to afford luxury accommodations has risen dramatically over the past few years.

⇨ The hospitality industry is expected to show a sustained recovery in 2012 and a return to pre-financial crisis levels in terms of room rates. „Being Green" is seen as important for increasing brand value and the use of energy-efficient materials is widely adopted.

⇨ The crisis has particularly strong impact and negative consequences in certain countries. One of these countries is Greece, in which the gross domestic product (GDP) has declined by 7,3%, the foreign debt is 182,2% of the GDP, unemployment has soared to 16,3% and wages of civil servants have been decreased by 30-40%. Moreover, apart from the economic crisis, Greece is undergoing a serious political crisis.

⇨ Tourism can be the driving force behind Greece's economic recovery. Tourism brings in revenues and means more jobs. For these reasons, several measures aiming to restructure, improve and boost the Greek tourism should be taken by the country's policy makers. These measures include: enhancement of alternative forms of tourism, like agro tourism and religious tourism to encourage visitors to come all year round; protection and management of the environment; creation of quality infrastructure; development of synergies with other sectors and branches of the economy; boost of competitiveness through a tourism product that offers quality and value for money. Moreover, tourism can become the Greek government's tool, in the effort to achieve its social and environmental policy targets.

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Spyros Vassiliadis*, Diogenis Baboukardos**, Panagiotis Kotsovolos***

BASEL III, THE FISCAL CRISIS AND THEIR CONSEQUENCES ON THE GREEK BANKING SECTOR

Abstract

The need for tighter and more robust supervision of the global financial system was apparent long before nowadays economic crisis burst out. Although Basel I was the cornerstone of the first effort for the imposition of international regulations to banks, soon it was outrun being substituted by Basel II. The economic shock of 2007 financial crisis led the Committee of Banking Supervision of Basel to a new global regulatory framework for the banking system, aiming to strengthening it against future financial crises. In November 2010, a revised Pact of Basel II, named Basel III, was presented to the Seoul G20 Leaders' Summit. Basel III represents a fundamental strengthening of global capital standards. Together with the introduction of global liquidity standards, the new capital standards deliver on the core of the global financial reform agenda. It is argued that the implementation of Basel III will considerably increase the quality of banks' capital and significantly raise the required level of it. In addition, it will provide a „macro prudential overlay" to better deal with systemic risk. Finally, the new package will allow sufficient time for a smooth transition to the new regime. During the last years the Greek banking system has been found itself in the middle of a turmoil bearing successive shocks; first the global financial crisis and later on a side effect of it: Greece's debt crisis. This paper discusses the future implementation of the newly introduced Basel III into a unique context: Can Basel III secure the congruous operation of the banking system in periods of severe fiscal problems?

JEL classification code: G01, G21

Keywords: Banking Supervision, Basel III, Bank Regulation, Greece.

* Professor of Economics, Alexander TEI of Thessaloniki, Greece, svas@acc.teithe.gr

** PhD Candidate in Accounting, Jönköping International Business School, Sweden

*** Research Student, Hellenic Open University

The consequences of a financial crisis: Making banking supervision more rigorous

Since July 2007, the world has been facing the most serious economic crisis after the Great Recession of 1929. The main cause of the financial crisis was the real estate price bubble in the U.S.A. which was accompanied with the crisis in the market of high risk mortgage loans (Edward, 2010). The financial services market began to shake while some financial institutions were exposed to complicated structured products (Petsas, 2009). The breaking to pieces of the supervising authorities in the U.S.A. did not allow the direct diagnosis of the crisis and the prompt and effective co ordination for the crisis's confrontation. The crisis soon passed on the other side of the Atlantic with Northern Rock, an investment bank of the United Kingdom, being its first victim. The global financial crisis brought on several discussions about the strengthening of the global banking system. In one of these, in 2010 G20 Leaders' Summit in Seoul, a revised pact of Basel Accord II was presented „Basel Accord III". Basel III is comprised of structural elements agreed by the G-20 leaders and published by the Committee of Banking Supervision of Basel[1]. The basic scopes of these structural elements – measures are[2]:

1. The improvement of the banking sector ability to absorb the vibrations that emanate from financial and economic pressure, independently of its source.
2. The improvement of risks management and governing.
3. The enhancement of transparency and banks' notifications.

The new Basel Accord III

Basel III is referred to a combination of the revised Basel II framework and the new world models of capital. The application of Basel III aims to increase considerably both the quality of banks' capital and the required level of it. It also intends to reduce the systemic risk. The key measures of Basel III for the banking supervision are (Caruana J., 2010):

Better quality of banks' capital: The new Basel Accord III will increase considerably the quality of banks' capital. This crucial feature tends to be forgotten because observers are focused mainly on the level of regulatory capital that is required by the new Basel Accord III. The new definition of capital is as significant as the increased level of capital. Higher quality of capital means more loss – absorbing capacity, which in turn means that banks will be stronger, allowing them to better withstand financially stressed periods.

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[1] The Basel Committee's response to the financial crisis: report to the G20 (2010).

[2] International regulatory framework for banks (Basel III).

A basic element is the greater focus on what is called common equity; that is the highest-quality component of a bank's capital. According to the current standards banks are supposed to possess at least half of their regulatory capital as Tier 1 capital. The rest is made up of other elements of loss-absorbing capacity. The definition of common equity under Basel III is becoming stricter. According to the present system, certain types of assets of doubtful quality have already been removed from the capital base. In the frame of Basel III, these removals will be more stringent, since they will be applied directly to common equity. This represents an important strengthening of the definition of the highest banks' capital quality. And, moving on a step further, the definition of Tier 1 capital has also strengthened so that it includes common stocks and other financial instruments based on strict criteria. By strengthening the quality of capital, the new Basel Accord III will lead to a substantial improvement in the loss-absorbing capacity of banks.

Increased required level of capital: Equities are constituted by various financing means with special characteristics and they mainly have the capacity for absorbing damage (Zakka, 2010). It is known that the equity of credit institutions is the base of their robustness. It is, therefore, very important they are sufficient both in terms of quantity and quality. According to Basel III rules, banks should over-double their regulatory capitals. Nevertheless they are given an eight years deadline in order to conform to the new rules. Taking into account the present statements, the banks are asked to reach their final regulatory capital (Core Tier 1) up to 7%, by the 1st January 2019, which will include a minimum common equity requirement of 4.5% and a „cushion of equity" of 2.5% (Kourtali, 2010). As a result, the banking system will be able to withstand possible future periods of stress.

Reduction of systemic risk: The third essential element of the new regulatory capital framework is that it provides what could be called a „macroprudential overlay" for the confrontation of the systemic risk; that is the risk of financial system disruptions that can deregulate macro economy. In order to be sure, individual banks with better capitalisation will lead to a more powerful banking system, but this firm-specific approach by itself may not be sufficient. This is because the risk posed by the system is bigger than the total risk of individual banking institutions. That became particularly obvious during the financial crisis in 2007.

According to the Bank of International Settlements (Caruana, 2010) there are two basic tasks that should be pursued in order to limit effectively the systemic risk. The first is the reduction of procyclicality, which is the tendency of the financial system to amplify the ups and downs of the real economy. The second is to take into account of the inter-linkages and common exposures among financial institutions, specifically for those considered to be systemically important.

Basel III represents a fundamental turning point in the design of financial regulation. It is the first time that the conscious need to supplement the micro-

economic level of financial supervision with the macroprudential dimension finds expression in financial regulation. On the pro-cyclicality aspect Basel III will promote the creation of buffers in good times, which might be used in periods of stress. First, the new requirement for common equity is 7%. This new higher level includes the capital conservation buffer of 2.5% and will ensure that the banks maintain a buffer of capital, which can be used for the absorption of losses during periods of stress without going below the minimal capital requirements. Second, a basic element of Basel III rules to limit procyclicality will be the countercyclical capital buffer, which will rage from 0% up to 2.5%. This buffer would be built up during periods of rapid total credit growth, if, according to national authorities, this growth is increasing the systemic risk. On the contrary, the capital that is held in this buffer could be released in periods of downturn of the cycle. This would decrease the risk that available credit could be constrained by the regulatory capital requirements. The intention is to mitigate procyclicality and moderate the impact of the ups and downs of the financial cycle. Apart from addressing pro-cyclicality, Basel III will also allow for a better management of the systemic risk, due to the inter-linkages and common exposures among the individual credit institutions.

The administrative Board of Financial Stability and the Basel Committee are exploring several measures to deal with these systemically important financial institutions. The new Basel Accord III includes specific macroprudential tools, which the national supervisors can use to establish concrete capital requirements, in order to face the systemic risk over time and across institutions.

Sufficient time for a smooth transition to the new regime: The Basel Committee has stated that the reforms will be applied in such a way that does not impede the economic recovery. However, time is required for these new internationally agreed standards to be introduced in the national legislation. In this spirit, on 12 September 2010 the Basel Committee announced a sequence of transitional arrangements for the new standards. National authorities can and indeed, should impose higher standards, if it is required from the local conditions and from the prevailing economic conditions. Similarly, they can impose a shorter transition period whenever this is necessary. The new definition of capital will be effective from January 2013 while the higher minima for common equity and Tier 1 capital will be gradually adopted from January 2013. Tables 1 and 2 show the scheduled time plan.

Table. 1. Transition period for capital requirements

	before 2013	01.01.2013	01.01.2014	01.01.2015
Tier 1 Capital	4.0%	4.5%	5.5%	6.0%
Core Tier 1	2.0%	3.5%	4.0%	4.5%

Table. 2. Transition period for capital conservation buffer

	before 2016	01.01.2016	01.01.2017	01.01.2018	01.01.2019
Capital conservation buffer	0.0%	0.625%	1.25%	1.875%	2.5%

The Greek Banking Sector in Turmoil: What does the future brings?

The Greek banking sector can be characterized as one of the most active and dynamic sectors of the Greek economy. During the last two decades Greek banks have been undergone tremendous changes which led to the substantial expansion of their activities both inside Greece and abroad; especially in the South Eastern Europe. The deregulation and harmonization of European Union's banking/financial system, the privatization of the most state-owned Greek banks and the introduction of Euro in the beginning of the 21st century are just but a few factors which have created favorable conditions for the expansion of the Greek banks. A characteristic example is the evolution of interest rates (see Table 3). The introduction of a common currency in 2001 led to the rapid reduction of the interest rates which in turn led to higher net interest rate for the banks and consequently more profits, lower cost of borrowing, new investments and higher consumption amongst others. Figure 1 describes one of these favorable consequences. From 2001 until 2009 the aggregate actual consumption of individuals increased by almost 70%.

Today, however, the prosperous years of 00's are only a good memory. While these lines are being written, a super deal is being completed between the second and the third biggest Greek banks. The Boards of Directors of Alpha Bank and EFG Eurobank have come upon an agreement for the two banks being merged, forming a banking colossus in the South East Europe and one of the top 25 largest banking groups in Eurozone. The reasons that lead to this merger are far different from those led to a series of mergers and acquisitions during 90s. The merger is not a strategic movement for further expansion but simply a matter of survival: In the first half of 2011 the aggregate losses after taxes of the two banks reached €1.3bil. While the aggregate impairment losses on Greek Government's bonds net of taxes were more than €1.2bil. In addition, a few weeks before banks reported their interim financial statements, European Banking Authority stress tests[3] revealed inadequacies in EFG Eurobank's capital[4], speeding up the realization of last months' rumors of oncoming mergers among Greek banks.

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[3] For a detailed discussion http://stress-test.eba.europa.eu/

[4] Vaughan et al (2011) characterize EFG Eurobank as one of the eight Europe's „problem children" due to the fact that it was found „…to have insufficient reserves to maintain a core Tier 1 capital ratio of 5 percent in the event of an economic slowdown".

Table. 3. Basic Interest rates for loans and deposits in the end of year

	1998	1999	2000	2001	2002	2003	2004
To Households							
For new deposits (without agreed maturity)	8.84	8.30	3.95	1.83	1.10	0.87	0.96
For new loans (without defined maturity)	22.35	21.91	17.80	15.39	14.54	14.08	13.41
To Non-Financial Corporations							
For new deposits (without agreed maturity)	3.57	3.57	2.07	1.18	0.74	0.59	0.55
For new loans (without defined maturity)	15.71	14.71	10.25	7.89	7.23	6.78	6.97
	2005	2006	2007	2008	2009	2010	2011a
To Households							
For new deposits (without agreed maturity)	0.91	1.14	1.23	1.24	0.43	0.44	0.47
For new loans (without defined maturity)	13.07	13.80	14.47	14.83	14.08	14.40	14.94
To Non-Financial Corporations							
For new deposits (without agreed maturity)	0.71	0.92	1.05	0.96	0.35	0.36	0.42
For new loans (without defined maturity)	7.00	7.35	7.56	7.13	5.81	6.79	7.59

Source: Bank of Greece Database.

At the same time, however, as Table 4 shows, Greek banks sufficiently cover the capital adequacy requirements not only of Basel II but also of the newly proposed Basel III. Moreover, the recent stress tests of the European Banking Authority showed that the three out of four major Greek banks (apart from EFG Eurobank) have strong enough capital position to absorb the economic shocks resulted from the designed adverse scenarios. Hence, taking into consideration the ongoing merger of EFG Eurobank with Alpha Bank, it could be claimed that the backbone of the Greek economy is resilient. However, such an argument would be at least superficial. Even though Greek banks have succeeded in reporting an adequate level of capital, a more precise look into their fundamentals reveal some, at least, unsettling facts. Further down the most important of those facts (namely profitability and performance, volume of deposits, credit growth and quality) are discussed.

Table 5 gives an illustrative picture of the deterioration of Greek banks' performance over the last few years. In 2008 the aggregate profits before taxes for all listed Greek banks (except for the Central Bank of Greece) dropped by 35% in comparison to 2007. In 2009 profits ware less than half of 2008 while in 2010 the banking sector on the Athens Stock Exchange (ASE) presented aggregate losses

of almost €283 mil. Moreover, the interim financial statements for the first six months of 2011 which were published in late August 2011 revealed that the results of the four biggest Greek banks would have been extremely negative even in case they had not had to recognize impairment losses on Greek Government's bonds. Specifically profit before taxes and before impairment losses on Greek Government's bonds net of tax would have been almost 90% less than in 2010 same period for Alpha Bank and National Bank of Greece, while Eurobank would have had to recognize losses of near €126 mil. It should be also mentioned that Piraeus Bank would have been the only one of the „Big 4" with relatively positive results; mainly due to the fact that it was the only one of the four banks which recognized impairment losses in the interim financial statements of 2010.
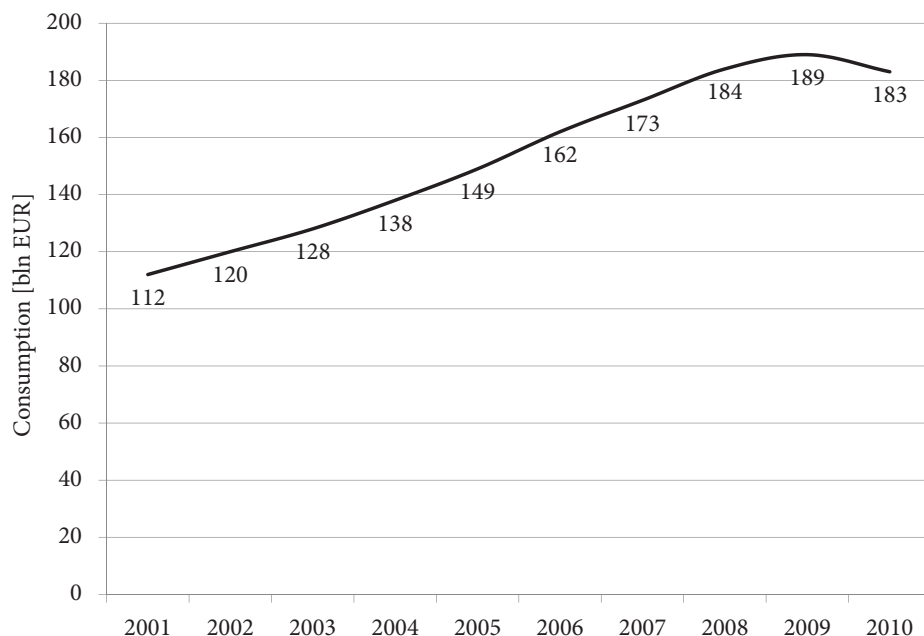
Fig. 1.   Actual annual individual consumption (in bil. €)

Source: Hellenic Statistical Authority Database

Table. 4.   Tier-1 capital adequacy ratio of the „Big-4" Greek banks under Basel II rules

	2008	2009	2010	2011a
Alpha Bank	8.0%	11.6%	11.9%	11.1%
EFG Eurobank	8.0%	11.2%	10.6%	11.6%
National Bank	10.0%	11.3%	13.1%	11.2%
Piraeus Bank	8.0%	9.1%	8.4%	8.6%

Source: Banks' Annual Financial Statements 2009, 2010 and Interim Financial Statements 2011.

Table. 5. Profit (Loss) before taxes of the „Big 4" Greek banks and of the banking sector (in mil. €)

	2005	2006	2007	2008	2009	2010	2011a
Alpha Bank	634.14	800.76	985.26	625.63	501.82	216.37	(511.03)
EFG Eurobank	676.00	832.00	1,050.00	818.00	398.00	136.00	(956.00)
National Bank	943.09	1,268.30	1,902.93	1,937.01	1,252.07	637.63	(1,280.83)
Piraeus Bank	304.62	556.55	785.31	385.79	286.62	10.75	(1,003.8)
Sector*	3,312.67	4,367.74	6,498.24	4,243.74	1,902.05	(282.85)	–

*Aggregate Results of the 14 Listed Banks on the ASE: ALPHA BANK, ATE BANK, ATTICA BANK, EFG EUROBANK, MARFIN POPULAR BANK, MARFIN EGNATIA, PROTON BANK, T BANK, GENERAL BANK, NATIONAL BANK, COMMERCIAL BANK. POST BANK, BANK OF CYPROUS, PIRAEUS BANK
Source: Corporate Benchmarking Financial Analysis Database, Hellastat Inc.

However profitability is not the only problem the Greek banks are facing. Another alarming issue is the steep decrease of domestic residents' deposits and repos. In an 18-month period (end 2009 – June 2011), Greek banks have lost almost 20% of their domestic deposits (Table 6). This loss is translated into absolute numbers as €22.5bil. and €25.5bil. in 2010 and the first six months of 2011 respectively. In this one and a half year companies' accounts present the most rapid drop as a percentage (almost 30%), while households' deposits present the most rapid drop in absolute numbers (more than €40 bil.).

Table. 6. Deposits and repos of domestic residents (in mil. €)

	2006	2007	2008	2009	2010	2011a
Households	141,070	158,414	185,424	196,860	173,510	156,116
Non-financial corporations	30,612	35,107	38,185	35,877	29,810	25,767
General Government	5,979	7,011	8,258	7,940	13,269	9,102
Insurance corporations	1,357	1,859	1,810	1,787	2,377	2,341
Other financial institutions	1,898	2,549	2,201	3,007	3,908	3,955
Total	180,916	204,940	235,878	245,470	222,874	197,281

Source: Bank of Greece Database.

The causes of this vicious circle of illiquidity in which Greek economy is entrapped are multiple. First, the uncertainty of the economic environment: The non-ending rumors for a possible default of Greece prohibit any capital inflow from foreign investments and also lead depositors to transfer their deposits to

„safer" economies abroad. In addition, the consecutive austerity measures of the Greek government and especially the increase of both indirect and direct taxes and salaries' cut off have reduced dramatically the consumption as well as the economic activity with the undesirable but also inevitable consequences of unemployment increase and further deposits decrease, since households have seen their real purchasing power to diminish, they tried to compensate it using their deposits. Hence, banks are watching their cash reserves to be substantially decreased having as a last resort of liquidity the European Central Bank.

Another negative aspect of the current condition of the Greek banking system is the cessation of lending activity. The total amount of credit to domestic private sector has remained almost stable for the last three and a half years following a 7-year period of rapid expansion in which the annual credit growth rate fluctuated between 16% and 21% (Table 7).

Table. 7.   Credit to domestic private sector by domestic financial institutions (in mil. €)

	2001	2002	2003	2004	2005	2006
Private Sector	74,601	87,177	103,848	123,754	149,639	179,158
– Corporations	50,908	55,843	63,619	71,432	81,008	93,574
– Individuals	23,693	31,334	40,229	52,323	68,630	85,584
– Housing	15,516	21,060	26,589	33,843	45,187	56,909
– Consumer	7,852	9,755	12,385	17,025	21,794	26,540
– Other loans	325	518	1,255	1,455	1,649	2,135
	2007	2008	2009	2010	2011a	
Private Sector	215,088	249,324	249,321	257,474	253,102	
– Corporations	111,288	132,457	130,042	139,726	137,398	
– Individuals	103,801	116,866	119,280	117,747	115,704	
– Housing	69,075	77,386	80,225	80,155	79,442	
– Consumer	31,915	36,412	36,023	35,061	33,572	
– Other loans	2,811	3,068	3,032	2,532	2,690	

Source: Bank of Greece Database.

Beyond the above findings, it should be underlined the extreme increase of non-performing loans the last few years. Table 8 shows that from 2008 to 2010 the housing and business non-performing loans doubled while the respective consumer loans increased by 150%. The halt in credit growth as well as the increase of non-performing loans are two more factors aggravating the illiquidity problem of the Greek banking system. Moreover these two factors deteriorate the profitability of banks due to the fact that lack of credit growth means stagnation of turnover and increase of non-performing loans means increase of costs due to loans' write-offs.

Table. 8. Non-performing loans (NPLs)

	2006	2007	2008	2009	2010
Housing loans	3.40%	3.60%	5.30%	7.40%	10.00%
Consumer loans	6.90%	6.00%	8.20%	13.40%	20.50%
Business loans	6.00%	4.60%	4.30%	6.70%	8.70%
Total	**5.40%**	**4.50%**	**5.00%**	**7.70%**	**10.40%**
Accumulated provisions over NPLs	**61.80%**	**53.40%**	**41.50%**	**41.50%**	**44.70%**

Source: Bank of Greece Annual Reports 2006-2010

Last but not least, it should be underlined that neither Basel II nor Basel III capital adequacy requirements seem to provide strong enough assurance for appeasing markets' concerns for Greek banks' ability to cope with a possible hair cut of the Greek Government bonds. This is clearly evidenced by banks' market capitalization. Figure 2 shows the extremely negative pricing of the „Big 4" Greek banks' shares after October 2009. Specifically, from the end of 2009 until September 2011 Alpha Bank's, EFG Eurobank's, National Bank's and Piraeus Bank's stock prices have lost 84%, 88%, 79% and 89% of their market value respectively.

It is becoming clear from the previous analysis that Greek banks are facing severe problems, even though they fulfill even the newly proposed Basel III capital adequacy requirements. Hence, a question arises: does Basel III guarantee a safer banking system?
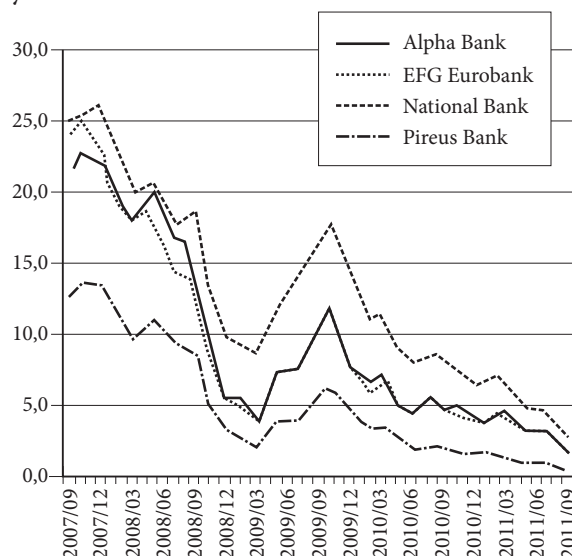

Fig. 2. Average daily stock prices of the „Big 4" Greek banks by month for the period September 2007 – September 2011 (in €)

Source: Athens Stock Exchange.

Does Basel III Guarantee a Safer Financial System?

According to Arestis and Karakitsos, the main causes of the „great recession" in the US are twofold, the significant redistribution of income from wage earners to the financial sector and the huge expansion of the liquidity in the world economy. During the period 1970-2007 the average fall of the wage share in five countries (USA, Japan, UK, Germany and France) was 10.5%, while the world liquidity between 1988 and 2008 increased from 8% to 19% of the world GDP. The income redistribution forced ordinary households to borrow and invest in financial and physical assets. This was made possible through financial liberalization and financial innovation (Arestis & Karakitsos, 2011).

Apart from these main causes there were also contributory factors: the international imbalances, mainly due to the growth of China, the monetary policy pursued by countries over the period leading to the crisis and the role played by the credit rating agencies. The role of the credit rating agencies as a basic source of information for investors, enterprises and organizations, forms an object of criticism from academics years ago.

Credit rating agencies, being unable to predict the increasing risk of the financial sector, which led to the 2008 crisis, compete among them to first predict risk undertakings leading to the next crisis. As they compose an oligopolistic market (there are only three firms: Moody's, Standard & Poor's and Fitch, accounting for the 95% of the world market), there is a high degree of interdependence among their decisions. Also, conflict of interests is another important feature of the credit rating agencies. In fact they receive most of their revenues from the issuers they rate. An effective regulative framework is necessary; otherwise their decisions contain the danger to be developed in self-fulfilled prophesies.

Suggested reforms of the financial sector are: credit rating agencies regulation, separation of commercial from investment banking and the break up of banks that are „too big to fail". Basel III does not face the „too big to fail" syndrome. The toxic leverage is highly probable, so the exposure of the banking sector to risk would be very high. Basel III is not by itself enough to correct the mechanism through which the main causes of the „great recession" emerged.

Conclusions

The implementation of Basel III will considerably increase the quality of bank's capital and will raise the required level of it. In addition it will provide a „macroprudential overlay" to better deal with systemic risk. Finally, the new package, will allow sufficient time for a smooth transition to the new regime. Today the Greek banking sector accepts strong pressure as a result of the fiscal crisis which has led to the downgrading of the financial credibility of the country.

The Greek banking system although fulfills the newly proposed Basel III capital adequacy requirements faces a number of serious problems such as profitability, volume of deposits, credit growth and an increasing amount of non-performing loans. Better banking regulation is critical but not enough. The promotion of financial stability requires a broad policy framework. A number of suggested reforms are: credit rating agencies regulation, separation of commercial from investment banks and the break up of banks that are „too big to fail".

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Piotr Misztal*

THE LINK BETWEEN THE GOVERNMENT BUDGET AND THE CURRENT ACCOUNT IN THE BALTIC COUNTRIES

Abstract

The main aim of the article is theoretical and empirical analysis of the causal relationship between the budget balance and the current account balance in the Baltic countries (Latvia, Lithuania and Estonia) in the period 1999-2010. In the paper are used methods based on the literature study of international economics and international finance as well as econometric methods (Vector Autoregressive Model – VAR). The results of investigation clearly point at the existence of negative relationship between fiscal and current account balances in the analyzed countries. At the same time it was revealed stronger impact of the current account balance on the government balance than the impact of the government balance on the current account balance in Latvia, Lithuania and Estonia.

Introduction

The alleged link between the balance of state budget and the balance of current account caused intense debate among economists in developed and developing countries, particularly in the 80s and 90s of the twentieth century (Pahlavani, Saleh 2009). An issue concerning the relationship between these macroeconomic variables is also relevant today, mainly due to the deepening economic problems in many the EU member states, associated with the increase of internal and external imbalances in these economies.

* Prof., Ph.D., The Department of International Business & Finance, Kazimierz Pulaski University of Technology and Humanities in Radom, e-mail: misztal@tkdami.net

According to the hypothesis called as a twin deficits hypothesis, budget deficit leads to the current account deficit (Kumhof, Laxton 2009; Misala 2007; Marinheiro 2006; Hallwood, MacDonnald 2003; Makin 2002). On the other hand, according to the perverse hypothesis of twin deficits, the current account deficit contributes to the government deficit (Kumhof, Laxton 2009; Pahlavani, Saleh 2009; Siddiqui 2007; Tumpel-Gugerell, Mooslechner 2003). Moreover, in accordance with the Ricardian equivalence hypothesis, the budget deficit does not affect or affects negatively the current account balance but in accordance with the hypothesis of Feldstein-Horioka (1980) the budget deficit and the current account balance interact mutually.

1. The relationship between the balance of government budget and the balance of current account in the light of theory

The starting point to clarify the relationship between the balance of government budget and the balance of current account is well-known equation of national income, expressed by the following formula:

$$Y = C + I + G + (X + M) \tag{1}$$

where:
Y – national income;
C – private consumption;
I – investment expenditures;
G – government expenditure;
X – exports of goods and services;
M – imports of goods and services.

On the other hand, deliberately ignoring the balance of interest and dividends and the foreign transfers, current account balance can be represented by the following expression:

$$CA = (X - M) \tag{2}$$

If a country imports more than exports the current account deficit appears, which is financed by foreign loans taken out by the state or the private sector. Hence, in a country with the current account deficit, the net foreign debt also increases. Thus, a country with the current account deficit imports „the current consumption and (or) investments" (if investments goods are imported), and „exports future consumption and (or) investments expenditures".

Referring to the equation of national income, national savings in an open economy can be expressed by the following formula:

$$S = Y - C - G + CA \qquad (3)$$

where:
S – savings.

Alternatively, the above equation can be written in the form of following equation:

$$S = I + CA \qquad (4)$$

where:
I – investments that can be expressed by the formula:

$$I = Y - C - G \qquad (5)$$

Analyzing the national savings, it is essential to distinguish savings generated by the private sector (S_p) and generated by the public sector (S_g).

$$S = S_p + S_g \qquad (6)$$

Private savings are the part of personal disposable income (income after tax), which is not consumed. Therefore, private savings can be written as follows:

$$S_p = Y_d - C = (Y - T) - C \qquad (7)$$

where:
Y_d – disposable personal income;
T – taxes.

In turn, public savings are the difference between the government revenue (taxes) and budget expenditures, which include government purchases (G) and government transfers (R) and can be written according to the formula:

$$S_g = T - (G + R) = T - G - R \qquad (8)$$

Thus, referring to the expression (6) domestic savings can be presented in the form of expression:

$$S = S_p + S_g = (Y - T - C) + (T - G - R) = I + CA \qquad (9)$$

Thus, finally, current account balance can be presented in the following form:

$$CA = S_p - I - (G + R - T) \qquad (10)$$

The above formula shows that, if it is assumed a constant difference between private savings and investments, then the changes in the balance of state budget are reflected in the changes in the balance of current account, which in turn means the occurrence of twin deficits hypothesis. However, if there is no con-

stant relationship between saving and investments, then the change in the fiscal balance is fully offset by changes in the size of savings. This situation results from the fact that the increase in budget deficit leads to an increase in national savings due to the expected increase in taxes in the future (to reduce the public deficit), which in turn does not lead to an increase in consumer spending and to the deficit of current account. Thus, in this case, does not appear the phenomenon of twin deficits (Mukhtar, Zakaria, Ahmed 2007).

According to the traditional approach (called as an Keynesian absorption approach) in situation when the economy is in a state of full employment, increase in the budget deficit leads to the current account deficit as a result of an increase in aggregate demand for goods and services, both domestic and imported (Charusheela 2005). The classic approach to this issue claims that a substantial and sustained fiscal deficit significantly affects the size of savings and investments, the prices of production factors, income distribution, exchange rate and foreign trade. Alternative explanation of the twin deficits hypothesis is quantitative approach to this issue, referring to the Mundell-Fleming model (1962). According to the Mundell-Felming model, the budget deficit resulting from fiscal expansion causes the current account deficit by the increase of interest rates in the country, leading to an inflow of foreign capital and domestic currency appreciation.

Another view on the relationship between the balance of government budget and the balance of current account is based on the assumption that the twin deficits are not related or negatively correlated. According to this approach, known as the Ricardian equivalence hypothesis, the budget deficit does not change interest rates and exchange rate and does not affect the savings and consumption and consequently does not affect the balance of current account. Thus, under Ricardian equivalence hypothesis, the balance of state budget and the balance of current account are mutually independent or even negatively related (Makin 2002).

On the other hand, according to another approach concerning the relationship between the balance of government budget and the balance of current account there is assumed the reverse (perverse) causal link between these balances than those which points the twin deficits hypothesis (Enders and Lee 1990). Namely, the increase in the current account deficit causes a slower economic development and consequently the budget deficit.

Finally, the fourth possible causal relationship between the balance of government budget and the balance of current account is bi-directional relationship between these balances. In order to clarify this relationship it can be used Feldstein-Horioka hypothesis, according to which domestic savings and investments are highly correlated in the long-run, despite the relatively high international mobility of capital (Arrow 2005). Hence, based on expression (10), a high degree of correlation of national savings and investments must mean the parallel

changes in the budget deficit and the current account deficit, which ultimately can be presented by the following expression.

$$CA = S_p - I + B \qquad (11)$$

where:
B – the balance of state budget.

2. The balance of government budget and the balance of current account in the light of the results of selected empirical studies

Empirical analysis on the relationship between the balance of state budget and the balance of current account published mainly in foreign economic literature can be divided into four groups. In the first group of analysis the budget deficit is treated as the cause of the current account deficit. Thus, the budget deficit in the country leads to the corresponding current account deficit (Abell 1990; Bachman 1992; Cash 1994; Islam, 1998; Piersanti 2000; Leachman, Francis 2002, Cavallo 2005, Erceg, Guerrieri, Gust 2005; Misala 2007). The second group of analysis treats the current account deficit as the cause of the budget deficit. In this case, the current account deficit leads to the budget deficit but not vice versa (Anoruo, Ramchander 1998; Khalid, Guan 1999; Alkswani 2000; Kim, Kim, 2006; Marinheiro 2008).

Moreover, in the third group of studies authors prove the absence or negative causal relationship between the budget deficit and the current account deficit (Enders and Lee 1990, Evans and Hasan 1994; Kaufmann, Scharler, Winckler 2002).

To the fourth group of studies can be included works that indicate the bi-directional causal relationship between the fiscal balance and the current account balance. On the one hand the government deficit affects the current account deficit, but on the other hand, the current account deficit affects the government deficit (Laney, 1984; Miller, Russek 1989, Boucher 1991, Evans 1993; Papaioannou, Yi 2001; Kaufmann, Scharler, Winckler 2002; Baharumshah, Lau 2007).

Darrat (1988) presented empirical evidence confirming the existence of bi-directional causality between the government deficit and the current account deficit. Using quarterly data covering the period 1960-1984, he stated that in the United States took place a significant impact of the government deficit on the current account deficit and an even greater impact of the current account deficit on the level of the government deficit. Similar results obtained Islam (1998), analyzing the twin deficits hypothesis in Brazil during 1973-1991. He confirmed the presence of two-way relationship between the fiscal deficit and the current account deficit in Brazil.

Khalid and Guan (1999) analyzed the causal relationship between the budget deficit and the current account deficit in five economically developed countries (USA, UK, France, Canada, Australia) and in five developing countries (India, Indonesia, Pakistan, Egypt, Mexico) in the period 1950-1994, using the cointegration method. The results confirmed the existence of a causal link between the budget deficit and the current account deficit in four of the five developing countries, while similar relationships were not observed in the developed countries.

Moreover, Piersanti (2000) using Granger-causality test examined the relationship between the current account deficit and the budget deficit in seventeen selected countries of the Organization for Economic Cooperation and Development (OECD) in the period 1970-1997. Research results confirmed the existence of twin deficits hypothesis in most OECD countries. Similarly, results obtained Akbostanci and Tunc (2001) who verified the existence of twin deficits hypothesis in Turkey during the period 1987-2001, using a vector error correction model.

However Kumhof and Laxton (2009) showed that the sustained increase in the budget deficit that occurs in large countries contributed to a significant increase in real interest rate in the world economy. Consequently, this led to short-run deterioration in the balance of current account by about 50 percent of the budget deficit and long-term deterioration in the balance of current account by 75 percent of the budget deficit in a large economy, such as the United States and by 100 percent in small open economies.

Siddiqui (2007) analyzed the relationship between the budget deficit and the current account deficit in the six countries of South Asia (Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka) during the period 1960-2004 by using the vector error correction model. The results of analysis indicated the presence of the twin deficits hypothesis in four of the six examined economies. The results of research also suggested that the probability of the phenomenon of twin deficits is greater in developing countries than in developed countries. Moreover, among the three analyzed countries (Nepal, Pakistan and Sri Lanka) author also confirmed the presence of the perverse hypothesis of twin deficits.

Similar results obtained Lau, Baharumshah and Khalid (2006) who analyzed the relationship between the budget deficit and the current account deficits in four Asian countries (Indonesia, Malaysia, Philippines and Thailand) in the period 1976-2000. Namely, they proved the presence of long-run relationship between the budget deficit and the current account deficit. They confirmed the existence of the twin deficits hypothesis in the case of Thailand, the perverse hypothesis of twin deficits in the case of Indonesia and the Feldstein-Horioka hypothesis in the other two countries.

Marinheiro (2006) examined the relationship between the fiscal deficit and the current account deficit in Egypt during the period 1974-2002 and using a vector autoregressive model. He demonstrated the pres-

ence of the perverse hypothesis of twin deficits thereby confirming a one-way influence of the current account deficit on the fiscal deficit. On the other hand, Nickel and Vansteenkiste (2008) examined the relationship between the current account and the government balance in 22 industrialized countries in the period 1981-2005 and they found that in relatively high debt countries this relationship turned negative but insignificant, suggesting that a rise in the government deficit does not result in a rise in the current account deficit. Hence, these results suggested that households in indebted countries tend to become Ricardian.

Summing up, the vast majority of empirical studies concerned the relationship between the budget deficit and the current account deficit indicates that there are significant causal links between these deficits.

3. The relationship between the balance of government budget and the balance of current account in the Baltic countries in the period 1999-2010

In the economic literature there are used several different econometric models by means of which economists attempt to analyze the relationship between the budget deficit and the current account deficit. In this study, to analyze the relation between the balance of government budget and the balance of current account in the Baltic countries during 1999-2010 is used an econometric model which is presented by the following expression:

$$CAD = f(BD) \tag{12}$$

where:
CAD – the balance of current account in the country, expressed in home currency (current account balance in relation to GDP);
BD – the primary balance of government budget in the country, expressed in home currency (the budget balance in relation to GDP).

All the above mentioned time series had a quarterly frequency and covered the period from the first quarter of 1999 to the second quarter of 2010. Before the model structural parameters were estimated, it was necessary to isolate a seasonal factor from the time series. The occurrence of the seasonal factor in the time series could lead to difficulties in interpreting changes in a given phenomenon in the analyzed period. To remove from the time series the seasonal fluctuations, the TRAMO/SEATS procedure was applied (see Figure 1).
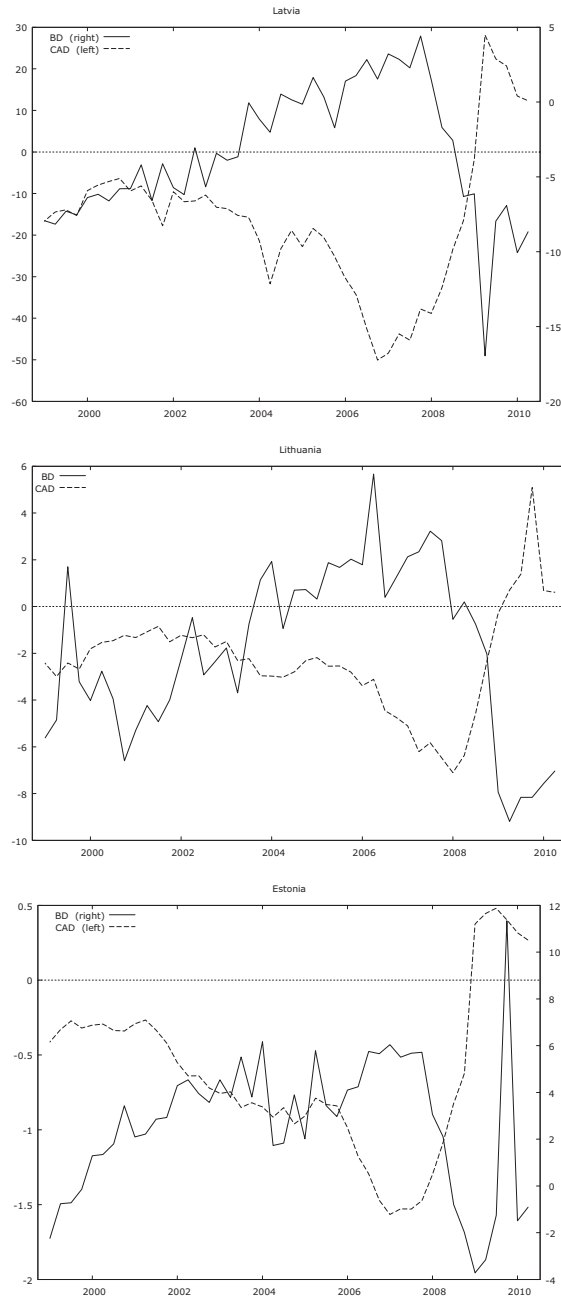
Fig. 1. The balance of government budget and the balance and current account in Latvia, Lithuania and Estonia in the period 1999-2010 [in %]

Source: Own calculations based on International Financial Statistics (2010).

Calculated on the basis of the above data the correlation coefficients between the balance of government budget and the balance of current account in the period 1999-2010 indicated the presence of high and negative linear relationship between these variables in all the Baltic states. This means that the improvement of the balance of government budget in the given country accompanied by deterioration of the balance of current account in the analyzed period (see Table 1).

Table. 1. Correlation coefficients between the balance of government budget and the balance and current account in Latvia, Lithuania and Estonia during the period 1999-2010

Latvia		
BD	CAD	
1,0000	-0,85	BD
	1,0000	CAD
Lithuania		
BD	CAD	
1,0000	-0,74	BD
	1,0000	CAD
Estonia		
BD	CAD	
1,0000	-0,54	BD
	1,0000	CAD

Source: Own calculations based on International Financial Statistics (2010).

Conclusions of causal interdependence on the basis of a simple correlation analysis, however, is inappropriate since this analysis does not distinguish, for example, fiscal policy shocks from the effects of the business cycle associated with technical innovation. For example, the improvement of the economic situation in the country leads on the one hand to a decrease in the budget deficit (as a result of automatic stabilizers of economy) and on the other hand to the current account deficit (as a result of increase in the volume of imports). Hence, too simplified and inappropriate analysis from a methodological point of view would rather suggest the presence of negative relation between these variables (Rybiński 2007).

Before the model estimation it was necessary to specify stationarity of the analyzed time series. To this purpose the Augmented Dickey-Fuller Test (ADF) was used. Among the analyzed variables used in model were time series with integration rows 0 and 1. Hence the lack of stationarity of time series forced the modification of the functional form of the model, in order to bring the stationarity of these variables. This modification consisted in replacing the volume of

variables by their first differences. Finally, in order to analyze the relationship between the balance of government budget and the balance and current account in the Baltic countries there was used vector autoregressive model (VAR) indicating short-run causal relationship between variables.

For the purposes of the analyses, in the case of Latvia and Lithuania two lags (two quarters) between explanatory variables and in the case of Estonia three lags (three quarters) between variables were adopted. The choice of lag lengths was in line with results of the information criteria of the Akaike, Schwartz-Bayesian and the Hannan-Quinn models. According to these criteria, models with two and three lag length were characterized by the biggest information capacity. The next step of analysis was estimation of the structural parameters of the model. Related results of parameter estimations were presented in the below table (see Table 2).

Table. 2. Results of the parameter estimation of the VAR model

Latvia
OLS estimates, observations 1999:4-2010:2 (T = 43)
Log-likelihood = -225.9412
Determinant of covariance matrix = 125.60462
AIC = 10.8810
BIC = 11.2087
HQC = 11.0018
Portmanteau test: LB(10) = 33.8003, df = 32 [0.3806]

Equation 1: BD

	Coefficient	Std. Error	t-ratio	p-value
BD_1	-0.620616	0.17414	-3.5639	0.00098
BD_2	-0.179317	0.180857	-0.9915	0.32756
CAD_1	-0.14096	0.0639915	-2.2028	0.03359
CAD_2	0.0394618	0.0664254	0.5941	0.55589

Mean dependent var	-0.031872	S.D. dependent var	2.833639
Sum squared resid	246.3984	S.E. of regression	2.513545
R-squared	0.269461	Adjusted R-squared	0.213266
F(4, 39)	3.596311	P-value(F)	0.013716
rho	0.013721	Durbin-Watson	1.965456

Equation 2: CAD

	Coefficient	Std. Error	t-ratio	p-value
BD_1	-0.457144	0.436263	-1.0479	0.30115
BD_2	-1.41392	0.453093	-3.1206	0.00339
CAD_1	0.197167	0.160315	1.2299	0.22611
CAD_2	-0.175163	0.166412	-1.0526	0.29901

Table 2 Cont'd

Mean dependent var	0.610586	S.D. dependent var	7.040985
Sum squared resid	1546.466	S.E. of regression	6.297060
R-squared	0.262956	Adjusted R-squared	0.206261
F(4, 39)	3.478524	P-value(F)	0.015974
rho	0.010016	Durbin-Watson	1.979308

Lithuania
OLS estimates, observations 1999:4-2010:2 (T = 43)
Log-likelihood = -147.67288
Determinant of covariance matrix = 3.2961394
AIC = 7.2406
BIC = 7.5683
HQC = 7.3614
Portmanteau test: LB(10) = 30.1823, df = 32 [0.5588]

Equation 1: BD

	Coefficient	Std. Error	t-ratio	p-value
BD_1	-0.380756	0.133942	-2.8427	0.00708
BD_2	-0.272988	0.128453	-2.1252	0.03996
CAD_1	-0.661648	0.249651	-2.6503	0.01156
CAD_2	-0.580269	0.3205	-1.8105	0.07793

Mean dependent var	-0.203099	S.D. dependent var	2.059134
Sum squared resid	129.7370	S.E. of regression	1.823894
R-squared	0.278658	Adjusted R-squared	0.223170
F(4, 39)	3.766467	P-value(F)	0.011021
rho	0.077998	Durbin-Watson	1.808072

Equation 2: CAD

	Coefficient	Std. Error	t-ratio	p-value
BD_1	-0.0856707	0.0825596	-1.0377	0.30581
BD_2	-0.109061	0.0791763	-1.3774	0.17623
CAD_1	-0.0712774	0.15388	-0.4632	0.64580
CAD_2	0.221323	0.19755	1.1203	0.26942

Mean dependent var	0.070302	S.D. dependent var	1.150450
Sum squared resid	49.29050	S.E. of regression	1.124215
R-squared	0.116673	Adjusted R-squared	0.048725
F(4, 39)	1.287819	P-value(F)	0.291470
rho	-0.069533	Durbin-Watson	2.101866

Table 2 Cont'd

Estonia
OLS estimates, observations 2000:1-2010:2 (T = 42)
Log-likelihood = -63.641188
Determinant of covariance matrix = 0.070989638
AIC = 3.6020
BIC = 4.0984
HQC = 3.7839
Portmanteau test: LB(10) = 35.3036, df = 28 [0.1612]

Equation 1: BD

	Coefficient	Std. Error	t-ratio	p-value
BD_1	-0.671463	0.129021	-5.2043	<0.00001
BD_2	-0.550444	0.173597	-3.1708	0.00310
BD_3	-0.0671085	0.233195	-0.2878	0.77517
CAD_1	-5.90193	2.17817	-2.7096	0.01025
CAD_2	-4.05394	2.10094	-1.9296	0.06157
CAD_3	11.9951	2.04207	5.8740	<0.00001

Mean dependent var	-0.018231	S.D. dependent var	3.209854
Sum squared resid	164.4151	S.E. of regression	2.137074
R-squared	0.610800	Adjusted R-squared	0.556744
F(6, 36)	9.416237	P-value(F)	3.18e-06
rho	0.298280	Durbin-Watson	1.386369

Equation 2: CAD

	Coefficient	Std. Error	t-ratio	p-value
BD_1	-0.0161257	0.010375	-1.5543	0.12887
BD_2	-0.0190609	0.0139595	-1.3654	0.18059
BD_3	-0.0149254	0.018752	-0.7959	0.43129
CAD_1	0.15662	0.175154	0.8942	0.37716
CAD_2	0.174762	0.168944	1.0344	0.30783
CAD_3	0.0352864	0.164209	0.2149	0.83107

Mean dependent var	0.013982	S.D. dependent var	0.185776
Sum squared resid	1.063158	S.E. of regression	0.171849
R-squared	0.252999	Adjusted R-squared	0.149249
F(6, 36)	2.032117	P-value(F)	0.086547
rho	-0.028334	Durbin-Watson	2.053321

Source: Own calculations.

Based on data presented in table 2 it should be noted that the average elasticity of changes in the government balance to changes in the current account balance in the Baltic states ranged from -5.90 to 11.99. Significantly lower was

average elasticity of changes in the current account balance to changes in the government balance in Latvia, Lithuania and Estonia. Namely, this ratio ranged from -1.41 to -0.01. Thus, the data presented in the table above indicated that changes in the current account balance in substantially larger degree determined the changes in the government balance in the Baltic countries in the short-run.

The next stage of analysis was an estimation of the impact of the government balance on the current account balance and the impact of the current account balance on the government balance in the Baltic countries during 1999-2010. The measurement was made by means of so-called impulse response function of the current account balance and the government balance to one unit changes in these variables (see Figure 2).
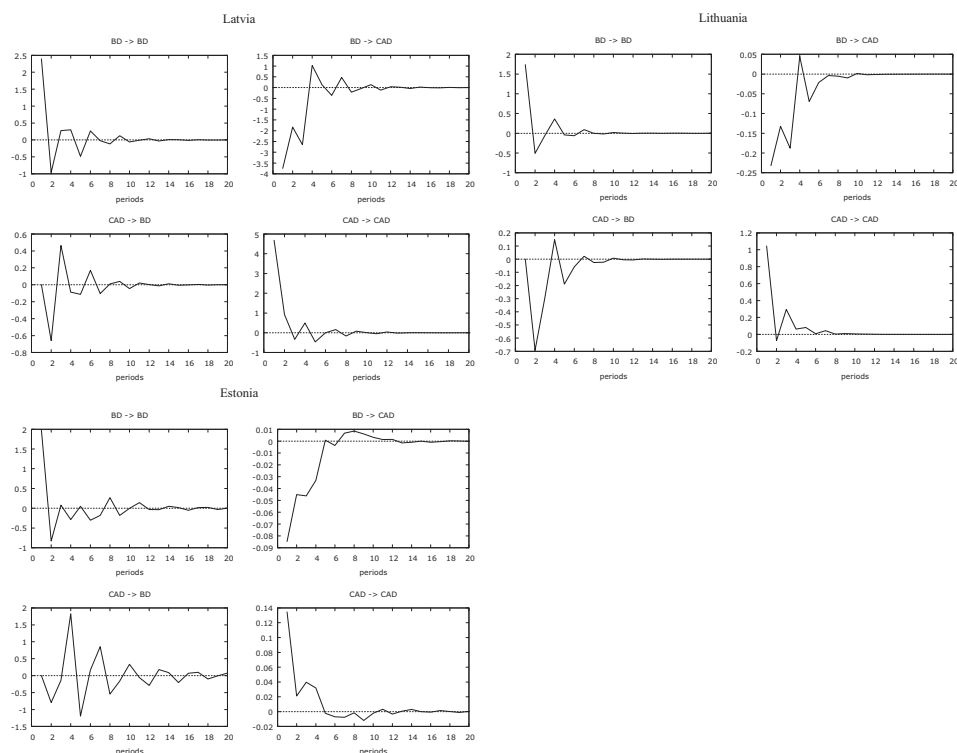
Fig. 2. Impulse response function of the current account balance and the government balance in Latvia, Lithuania and Estonia during 1999-2010

Source: Own calculations based on International Financial Statistics (2010).

According to the above figures it was found that the improvement of the current account balance in the Baltic countries led to a gradual deterioration of the government balance during two quarters after the shock, followed by

its stabilization after ten quarters. On the other hand, the improvement of the government balance led to an immediate deterioration of the current account balance in Latvia, Lithuania and Estonia during the first quarter after the shock and then to its stabilization after twelve quarters.

The final stage of analysis was decomposition of the residual variance of the current account balance and the government balance in the Baltic states in order to estimate the impact of changes in the government balance and the current account balance on the variability of the current account balance and the government balance respectively. Relevant results of the calculations were presented in Table 3.

Table. 3. Decomposition of the residual variance for the government balance and the current account balance in the Baltic countries

	Decomposition of variance for BD		Decomposition of variance for CAD	
Latvia				
period	BD	CAD	BD	CAD
2	93,9	6,1	43,3	56,7
4	91,2	8,8	52,4	47,6
6	91,1	8,9	52,3	47,7
8	90,9	9,1	52,5	47,5
10	90,9	9,1	52,6	47,4
12	90,9	9,1	52,6	47,4
14	90,9	9,1	52,6	47,4
16	90,9	9,1	52,6	47,4
18	90,9	9,1	52,6	47,4
20	90,9	9,1	52,6	47,4
Lithuania				
period	BD	CAD	BD	CAD
2	87,3	12,7	6,1	93,9
4	85,3	14,7	8,4	91,6
6	84,5	15,5	8,7	91,3
8	84,5	15,5	8,7	91,3
10	84,5	15,5	8,7	91,3
12	84,5	15,5	8,7	91,3
14	84,5	15,5	8,7	91,3
16	84,5	15,5	8,7	91,3
18	84,5	15,5	8,7	91,3
20	84,5	15,5	8,7	91,3

Table 3 Cont'd

	Decomposition of variance for BD		Decomposition of variance for CAD	
	Estonia			
period	BD	CAD	BD	CAD
2	87,9	12,1	33,2	66,8
4	54,1	45,9	37,0	63,0
6	46,8	53,2	37,0	63,0
8	43,1	56,9	37,2	62,8
10	42,7	57,3	37,1	62,9
12	42,5	57,5	37,1	62,9
14	42,4	57,6	37,1	62,9
16	42,2	57,8	37,1	62,9
18	42,2	57,8	37,1	62,9
20	42,2	57,8	37,1	62,9

Source: Own calculations.

Based on data from the above table it can be noted that changes in the current account balance accounted for approximately from 8.8% to 45.9% of the variation in the government balance after one year and from 9.1% to 57.8% after five years. A relatively high share in explanation for the variation in the government balance in the Baltic countries had an inertia factor (lagged changes in the government balance). On the other hand, changes in the government balance explained from 8.4% to 52.4% of the variation in the current account balance in the Baltic states after four quarters and from 8.7% to 52.6% after twenty quarters. Moreover, the largest share in explanation for the variation in the current account balance in the Baltic countries had an inertia factor (lagged changes in the current account balance).

Conclusions

Results of the analysis clearly indicate the occurrence of negative causal relationship between the government balance and the current account balance in Latvia, Lithuania and Estonia during 1999-2010. Thus, in the Baltic countries there was confirmed existence of the Ricardian equivalence hypothesis. In the case of Ricardian equivalence hypothesis, relatively high public debt level should be associated with a stable or even negative relationship between the government balance and the current account balance. Therefore, it was totally rejected the existence of twin deficits hypothesis, the perverse hypothesis of twin deficits and Feldstein-Horioka hypothesis.

Results of the analysis indicate that changes in the current account balance determined in substantially larger degree the changes in the government balance in the Baltic countries in the short-run. The average elasticity of changes in the government balance to changes in the current account balance ranged from -5.90 to 11.99 but the average elasticity of changes in the current account balance to changes in the government balance was from -0.41 to -0.01 in these countries.

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Tadeusz Dyr*

EUROPEAN TRANSPORT POLICY AND STRATEGY FOR SUSTAINABLE DEVELOPMENT

Abstract

Sustainable development is the overarching long-term goal of the EU. In realizing its the European transport policy is playing the important part. The paper presents meaning of the transport policy in implementing the idea of sustainable development as well as the instru-ments favoring sustainable development.

JEL classification code: O18 , O20

Keywords: sustainable development, transport policy, transport market, external cost, transport safety, value of life.

Introduction

The first European Union strategy concerning sustainable development was adopted at the Council of Europe meeting in Göteborg in 2001. The strategy cited conclusions of the 1987 Brundtland Commission. Sustainable development was defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (COM (2001) 264). Agreements reached by the Lisbon summit were cited to emphasise the need for an economic policy targeted at leading competitive status of the European Union worldwide while maintaining a balance between economic growth, social

* Prof., Ph.D., The Department of Economy, Kazimierz Pulaski University of Technology and Humanities in Radom, t.dyr@pr.radom.pl

cohesion, and environmental protection. Sustainable development should be the fundamental objective of sectoral policies, including the transport policy.

The recommendations in 2001 strategy of sustainable development were reflected by instruments of the European transport policy. The policy guidelines of the White Paper stressed that transport is a key factor in modern economies. But there is a permanent contradiction between society, which demands ever more mobility, and public opinion, which is becoming increasingly intolerant of chronic delays and the poor quality of some transport services. The transport system needs to be optimised to meet the demands of enlargement and sustainable development. A modern transport system must be sustainable from an economic and social as well as an environmental viewpoint (COM (2001) 370).

The aims of the 2001 European transport policy were formulated for the first decade of the 21st century. 2010 was the deadline for their achievement. Changes in the European Union transport system need to be analysed, therefore, with regard to their effect on sustainable development of the European Union. These issues are addressed in the present paper without discussing theoretical foundations of the transport policy, extensively presented in a range of publications (Grzywacz, Wojewódzka-Król, Rydzkowski, 2002).

1. European transport policy and its instruments determining sustainable development

Implementation of a common transport policy was envisaged in Article 74 of the 1957 Rome Treaty. It was only the 1990s, however, which brought concrete European transport policy solutions. The White Paper on transport policy (COM (1992) 494 final), adopted in 1992, provided for an integrated approach to transport, stressing the need for clear principles of an open, competitive, and non-discriminating market. That spelled an end to domination of transport markets by entities established by public authorities and protected from competition by the public nature of their aims (Dyr, 2009).

The 2001 European transport policy made clear references to the earlier European Union strategy for sustainable development. That strategy proposed actions intended to:
– decouple transport growth significantly from growth in Gross Domestic Product in order to reduce congestion and other negative side-effects of transport,
– bring about a shift in transport use from road to rail, water and public passenger transport so that the share of road transport in 2010 is no greater than in 1998 (the most recent year for which data are available) (COM (2001) 26).

The instruments of realisation of the European Union transport sector goals, defined in the same strategy, included internalisation of transport's external costs, development of intelligent transport systems, prioritising of financing for invest-

ment into public transport and environment-friendly branches of transport (reducing public expenditure on investments into road transport), improvement of public transport service range by opening the market and integration of transport systems.

The 2001 White Paper detailed goals and instruments of the strategy for sustainable development of the European Union by presenting a variety of transport development scenarios. The recommended scenario comprises a series of measures ranging from pricing to revitalising modes of transport alternative to road and targeted investment in the trans-European network. This integrated approach would allow the market shares of the other modes to return to their 1998 levels and thus make for a shift of balance from 2010 onwards (COM (2001) 370). Some 60 specific measures to be taken at the Community level were proposed to implement the recommended approach to creation of a European Union transport system. These include:
– revitalising the railways,
– improving quality in the road transport sector,
– promoting transport by sea and inland waterway,
– striking a balance between growth in air transport and the environment,
– turning intermodality into reality,
– building the trans-European transport network,
– improving road safety,
– adopting a policy on effective charging for transport,
– recognising the rights and obligations of users,
– developing high-quality urban transport,
– putting research and technology at the service of clean, efficient transport,
– managing the effects of globalisation (COM (2001) 370).

The goals and instruments of the European transport policy, based on the 2001 strategy for sustainable development, were reaffirmed in 'Renewed EU sustainable development strategy'. The document stated the principal objective of sustainable transport was to ensure that our transport systems meet society's economic, social and environmental needs whilst minimising their undesirable impacts on the economy, society and the environment. That objective governed the following:
– decoupling economic growth and the demand for transport with the aim of reducing environmental impacts,
– achieving sustainable levels of transport energy use and reducing transport greenhouse gas emissions,
– reducing pollutant emissions from transport to levels that minimise effects on human health and/or the environment,
– achieving a balanced shift towards environment friendly transport modes to bring about a sustainable transport and mobility system,
– reducing transport noise both at source and through mitigation measures to ensure overall exposure levels minimise impacts on health,

– modernising the EU framework for public passenger transport services to encourage better efficiency and performance by 2010,
– in line with the EU strategy on CO_2 emissions from light duty vehicles, the average new car fleet should achieve CO_2 emissions of 140 g/km (2008/09) and 120 g/km (2012),
– halving road transport deaths by 2010 compared to 2000 (DOC 10917/06).

In consideration of the formulated goals of the strategy for sustainable development of the European Union and the resultant instruments of the European transport policy, a number of legislative initiatives were taken in the first decade of the 21st century. They markedly increased the extent of regulation of the transport market and sectors affecting its operation. In consequence, they led to significant shifts in the European transport system. The subsequent parts of this paper will attempt to determine the degree to which they contributed to achievement of sustainable development objectives.

2. Changing demand for transport services

Separation of economic growth from demand for transportation services is an essential goal of the European transport policy, rooted in the strategy for sustainable development of the European Union. Statistics collected by EUROSTAT indicate there is a high correlation between these two areas. The correlation coefficient between GDP changes in EU-27 and passenger transport in 1995-2009 is 0.99 and between GDP and freight transport is 0.96. The change trends in transport volumes and GDP in UE-27 are outlined in Figure 1.
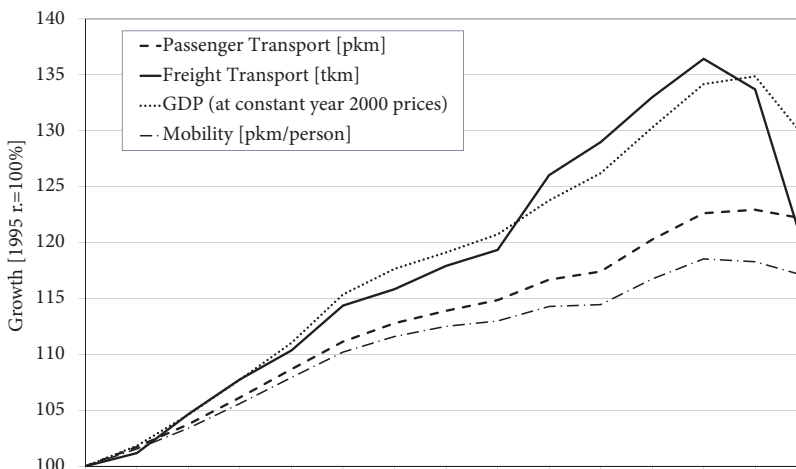

Fig. 1. Dependence between the dynamics of GDP changes, freight and passenger transport in EU-27

Source: Own study on the basis of EUROSTAT data.

Till 2008, GDP growth had been associated with increasing passenger and freight transport. The average GDP growth in EU-27 ranged around 2.33% in 1995-2008. In the same period, the volume of freight transport rose by 2.26%, of the passenger transport 1.6%, and mobility by 1.3% on average.

Approval of the White Paper in 2001, which comprised instruments for decoupling economic growth and the demand for transport, did not affect those trends. In 2001-2008, GDP growth in EU-27 averaged 1.97%. In the same period, the volume of freight transport rose by 2.07%, of the passenger transport 1.24%, and mobility by 0.83% on average.

The dependence between economic growth and the demand for transport can also be observed in the initial period of the crisis. GDP fall in 2009 is accompanied by a drop in demand for both freight and passenger transport services.

These dependences between GDP variation and the demand for transport are similar in all the EU member states including those in Central Europe (Table 1). The relatively high economic growth in Poland, despite the adverse trends in other EU member states, is reflected in systematic increases of freight and passenger transport.

Statistics do confirm a very high correlation between GDP changes and freight and passenger transport in most Central European countries. In the circumstances, the decoupling of economic growth and the demand for transport envisaged in the strategy for sustainable development is not very likely. Transport is an essential factor in realisation of fundamental European Union freedoms, that is, freedom of movement, of working and studying, as well as free movements of foods and services. Considering these freedoms and the expected trends towards closer cooperation with the European Union neighbouring regions, demand for transport services should be expected to rise.

In the long term, lower dynamics of demand for transport can be associated with the expected adverse demographic trends which will have negative impact on economic growth. The total population of EU-25 will fall slightly, but will become much older. In economic terms, the main change will involve the size of the working-age population (15-64 years), which will decrease by 48 million between now and 2050. The dependency ratio (the number of people aged 65 years and above relative to those aged from 15 to 64) is set to double and reach 51% by 2050, which means that the EU will change from having four to only two persons of working age for each citizen aged 65 and above (COM(2006) 571). The anticipated demographic structure in Poland is equally poor. The population of this country is expected to diminish to approx. 31.1m, or by 18%, till 2060. At the same time, the post-working age population will climb by 119% compared to the European Union average of 79%. The working-age population will also systematically decrease. These forecasts suggest that the active population will reduce by 40% in Poland and by 15% in the EU until 2060 (SEC(2008) 2911).

Table. 1. Dependence between the dynamics of GDP changes, freight and passenger transport in the EU and Central European countries

	Period			
	1995-2008	2001-2008	2007-2008	2007-2009
GDP				
EU-27	2.32	2.00	0.5	-1.90
Poland	4.66	4.61	5.1	3.35
Estonia	6.74	6.21	-3.7	-9.00
Latvia	6.52	7.33	-3.3	-10.50
Lithuania	7.00	7.54	2.9	-5.95
Slovak Republic	5.12	6.56	5.9	0.50
Czech Republic	3.51	4.74	3.1	-0.80
Freight Transport				
EU-27	2.22	2.45	-1.99	-5.30
Poland	3.38	6.52	4.17	5.43
Estonia	6.84	10.76	10.55	1.95
Latvia	5.83	9.13	3.56	-8.27
Lithuania	4.81	9.73	0.96	-0.40
Slovak Republic	9.37	5.32	4.04	-1.23
Czech Republic	6.96	1.23	3.56	-3.97
Passenger Transport [pkm]				
EU-27	1.51	1.14	0.59	0.28
Poland	4.82	6.03	11.68	6.86
Estonia	4.28	4.86	2.09	1.18
Latvia	4.98	4.45	4.29	-0.79
Lithuania	5.33	5.18	-3.10	-4.70
Slovak Republic	-0.12	0.02	-1.88	-3.92
Czech Republic	1.27	1.17	2.00	0.70

Source: Own study on the basis of EUROSTAT data.

Table. 2. Pearson's correlation coefficient between GDP and volumes of freight and passenger transport in the EU and Central European countries

	Freight Transport [tkm]	Passenger Transport [pkm]	Mobility [pkm/person]
EU-27	0.92	0.99	0.99
Poland	0.73	0.96	0.97
Estonia	0.79	0.95	0.96
Latvia	0.88	0.94	0.95
Lithuania	0.78	0.98	0.98
Slovak Republic	0.89	0.00	-0.07
Czech Republic	0.73	0.95	0.93

Source: Own study on the basis of EUROSTAT data.

Labour force mobility within the European Union should become a major factor counteracting these adverse demographic trends. Meanwhile, the mobility is relatively weak. A mere 2% of working-age citizens are estimated to live and work in another member state (COM(2007) 773). The report emphasises the degree of mobility has gradually been rising in recent years. The number of mobile workers in EU-15 countries increased from 470 000 in 2000 to around 610 000 in 2005. In addition, numbers of seasonal workers who cross borders (including holiday jobs for young people) can substantially boost the percentage of migrant workers in the EU, although they are usually not included in national data.

The issue of workforce mobility in the European Union has been the subject of public opinion research projects (the so-called EUROBAROMETER). 2005 research suggests Poland is among the countries of relatively high level of stated intentions of worker mobility (Fig. 2).
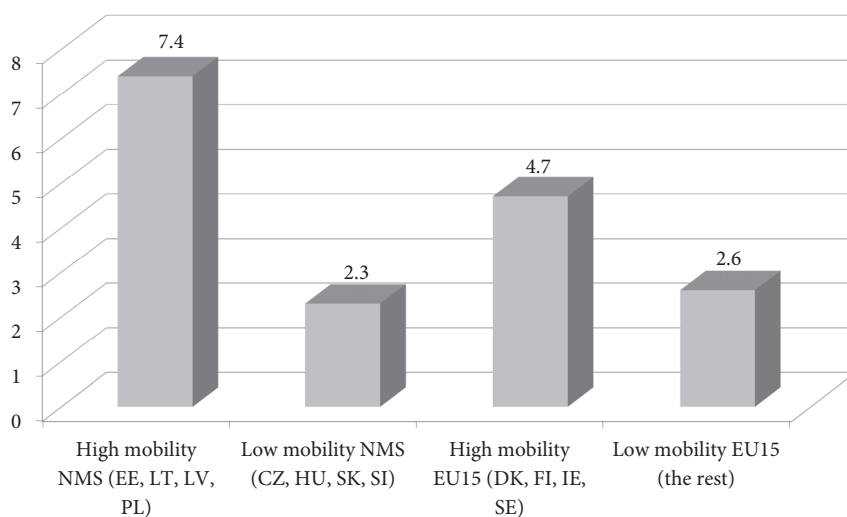
Fig. 2. Intention to move country in the next five years [%]

Source: Long-distance mobility in Europe (2006).

Closer trade relations with the Mediterranean and East European countries will be an important factor influencing growth of freight and passenger transport. Russia and Turkey will become 'foci' of trade flows from the EU. North Africa will also become a major trade direction. Trade turnover between EU member states and countries neighbouring the European Union is expected to rise from 580m ton in 2000 to more than 1.1 bn ton of cargo in 2020 (Table 3). This will have substantial effect on growing demand for freight transportation. The greater trade turnover will generate demand for passenger transport.

Table. 3. Trade exchange between EU member states and neighbouring countries of the European Union ['000s ton p.a.]

EUN	Total imports EUN from UE29			Total exports EUN to EU29		
	2000	2020		2000	2020	
		reference scenario	scenario 2		reference scenario	scenario 2
Albania	2 492	9 329	9 329	179	1 068	1 068
Russia	13 627	33 313	46 355	228 914	475 330	510 467
Ukraine	5 825	13 523	15 223	30 897	103 459	104 640
Belarus	1 919	4 544	5 890	4 981	10 312	11 815
FYROM	2 991	7 069	7 069	915	2 511	2 511
Bosnia & Herzegovina	1 363	3 538	3 538	603	1 389	1 389
Croatia	6 200	12 326	17 190	9 399	14 048	17 109
Serbia and Montenegro	4 090	9 427	11 833	1 357	2 742	4 082
Moldavia	849	2 068	2 233	705	1 114	1 409
Turkey	21 441	54 662	57 211	18 315	41 233	44 128
Rest Europe	6 973	15 785	15 785	1 376	2 308	2 308
Morocco	8 032	13 310	13 310	9 714	13 488	13 488
Algeria	7 238	12 809	12 809	54 522	67 892	67 892
Tunisia	7 303	11 704	11 704	4 613	5 829	5 829
Libya	4 391	6 769	6 769	60 739	65 220	65 220
Egypt	7 631	12 789	12 790	10 150	12 562	12 562
Syria	2 450	5 984	6 788	15 525	17 956	18 155
Lebanon	3 110	6 473	7 459	638	1 363	1 391
Israel	7 348	18 110	20 352	5 496	13 614	14 638
Georgia	589	208	335	843	836	915
Armenia	232	320	503	33	43	58
Azerbaijan	143	150	244	4 078	4 194	4 357
ALL EUN countries	**116 237**	**254 210**	**284 719**	**463 992**	**858 511**	**905 431**

EUN – countries neighbouring the European Union
EU29 = EU27 + Norway and Switzerland

Source: Own study on the basis NEA (2005).

Regional integration and expanding trade relations with countries neighbouring the European Union are inextricably linked with proceeding globalisation processes. This phenomenon involves ongoing reduction or elimination of barriers to the international exchange of goods, services, capital, ideas, and work force. This enhances the degree of integration between countries and regions in the global production system which has been a key characteristic of social and economic development of the last fifty years. The development is fostered by

cheap transport and rollout of communications systems. Although the political and economic crisis as well as delays with trade negotiations can temporarily hinder the process, the progress of communications and transport technologies and directions of economic development of many countries indicate the trend is set to continue.

Globalisation will have substantial impact on development of the transport system in the European Union and relations with the neighbouring regions. Foreign direct investment of EU businesses in third-party countries as well as location of manufacturing in countries of higher labour cost productivity are factors determining rising demand for freight and passenger transport.

In the circumstances, the decoupling of economic and transport growth – a fundamental objective of the European transport policy, rooted in the EU strategy of sustainable development – will be extremely difficult. Free movement, a major achievement of the European Union, is an essential factor of economic growth. It has been signalled that employee mobility helps to limit the adverse demographic trends in the European Union. It is also perceived as a key element of implementation of the Lisbon strategy for growth and employment. The reverse obtains as well – economic growth supports higher mobility which is not job-related. Growing household incomes generate the need to travel for tourism and leisure. Reducing demand for freight transport will prove difficult too. Economic globalisation, regional integration, and higher trade exchange with neighbour countries of the European Union generate increasing demand for transport services.

Noting the inefficiency of transport policy instruments at decoupling economic growth and the demand for transport, 2011 White Paper (COM (2011) 144) abandoned that objective. The need for other solutions to implement the idea of sustainable development was emphasised.

3. Changing structure of demand for transportation services

The decoupling of economic growth and the demand for transport in line with the strategy for sustainable development would be accompanied by changing the sectoral structure of transport. Road transport was assumed to diminish by 2010 in favour of environment-friendly means of transport. In quantitative terms, the transport structure of 1998 was to be restored by 2010. This aim reflected the systematically growing share of road transport in both passenger and freight transportation.

In 1998, the share of road transportation accounted for 42.9% of the freight transport market and 68.5% of the overland freight transport market. Adoption of the European transport policy instruments in 2001 did not contribute to reducing the significance of this transport sector (Table 4).

In 1998-2009, freight transportation in the European Union rose by 793.6 m tkm, i.e. by 24.1%. Road transportation had the largest share in that growth. It grew

by 466.3 m tkm or 33.0%. This means that lorries serviced 58.8% of the overall transport growth and 88.5% of the overland freight transport growth.

Table. 4. Freight transport in the European Union

Year	Road	Rail	Inland Waterways	Pipelines	Sea	Air	Total
Freight Transport [m tkm]							
1998	1 414.2	392.5	116.7	125.4	1 232.0	2.3	3 283.1
1999	1 469.9	383.6	115.1	124.2	1 268.0	2.3	3 363.2
2000	1 518.7	403.7	109.1	126.7	1 314.0	2.5	3 474.6
2001	1 556.3	386.0	118.8	115.5	1 334.0	2.5	3 513.0
2002	1 605.9	383.8	122.1	114.9	1 355.0	2.4	3 584.1
2003	1 625.4	391.9	119.8	119.3	1 378.0	2.4	3 636.8
2004	1 742.1	416.3	127.8	118.2	1 427.0	2.5	3 833.9
2005	1 794.0	414.1	131.0	125.4	1 461.0	2.6	3 928.1
2006	1 847.6	440.4	128.7	124.2	1 505.0	2.7	4 048.6
2007	1 914.5	453.1	133.9	126.7	1 532.0	2.8	4 162.9
2008	1 880.5	442.8	132.5	133.0	1 498.0	2.7	4 089.6
2009	1 691.4	361.6	132.5	128.4	1 336.0	2.5	3 652.5
Modal split [%]							
1998	43.1	12.0	3.6	3.8	37.5	0.1	100.0
1999	43.7	11.4	3.4	3.7	37.7	0.1	100.0
2000	43.7	11.6	3.1	3.6	37.8	0.1	100.0
2001	44.3	11.0	3.4	3.3	38.0	0.1	100.0
2002	44.8	10.7	3.4	3.2	37.8	0.1	100.0
2003	44.7	10.8	3.3	3.3	37.9	0.1	100.0
2004	45.4	10.9	3.3	3.1	37.2	0.1	100.0
2005	45.7	10.5	3.3	3.2	37.2	0.1	100.0
2006	45.6	10.9	3.2	3.1	37.2	0.1	100.0
2007	46.0	10.9	3.2	3.0	36.8	0.1	100.0
2008	46.0	10.8	3.2	3.3	36.6	0.1	100.0
2009	46.3	9.9	3.6	3.5	36.6	0.1	100.0
Modal split for inland modes [%]							
1998	69.0	19.2	5.7	6.1	–	–	100.0
1999	70.2	18.3	5.5	5.9	–	–	100.0
2000	70.4	18.7	5.1	5.9	–	–	100.0
2001	71.5	17.7	5.5	5.3	–	–	100.0
2002	72.1	17.2	5.5	5.2	–	–	100.0
2003	72.0	17.4	5.3	5.3	–	–	100.0
2004	72.5	17.3	5.3	4.9	–	–	100.0
2005	72.8	16.8	5.3	5.1	–	–	100.0
2006	72.7	17.3	5.1	4.9	–	–	100.0
2007	72.8	17.2	5.1	4.8	–	–	100.0
2008	72.6	17.1	5.1	5.1	–	–	100.0
2009	73.1	15.6	5.7	5.6	–	–	100.0

Table 4 Cont'd

Year	Road	Rail	Inland Waterways	Pipelines	Sea	Air	Total
Changes [Year 1998 = 100%]							
1998	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1999	103.9	97.7	98.6	99.1	102.9	102.2	102.4
2000	107.4	102.8	93.5	101.0	106.7	108.9	105.8
2001	110.0	98.3	101.8	92.1	108.3	109.3	107.0
2002	113.6	97.8	104.6	91.6	110.0	106.7	109.2
2003	114.9	99.8	102.6	95.2	111.9	107.6	110.8
2004	123.2	106.1	109.5	94.3	115.8	111.6	116.8
2005	126.9	105.5	112.3	100.0	118.6	114.7	119.6
2006	130.6	112.2	110.3	99.1	122.2	118.2	123.3
2007	135.4	115.4	114.7	101.0	124.4	122.2	126.8
2008	133.0	112.8	113.6	106.1	121.6	120.0	124.6
2009	119.6	92.1	113.5	102.4	108.4	110.2	111.3

Source: Own study on the basis EU Energy and Transport in Figures (2010).

Freight transportation declined in 2007-2009 as a result of the economic crisis. The overall transport fell by 13% at the time. The shrinkage affected mostly rail transport (-20.2%) and inland water transport (-17.3%) whereas the European transport policy envisaged increasing shares of these environment-friendly sectors. Their lower market shares do not help to implement the idea of sustainable development.

Passenger transport climbed by 894.2 bn pkm, that is, by 15.8% in 1998-2008, driven mostly by private car and air transportation. The transportation by private cars rose by 625.9 bn pkm, i.e. 15.1% in 1998-2008. This means that 70% of the growth was caused by cars. The growth was thus comparable to the share of this sector in the passenger transportation market. In terms of only overland transport, the share of car transportation grew by 1 percentage point in the period under discussion. The rise in air transport amounted to 152 bn pkm (37.2%). Its share in rising transport reached 17%, which is more than double the average share of air transport in the passenger transportation market. Such dramatic leaps in both these transport sectors affirm that the European transport policy is ineffective. The instruments adopted in 2001 anticipated reductions of air and car transport growth. The change trends of passenger transport in the European Union are presented in Table 5.

The growth of passenger rail transport is mainly owing to investment in high speed rail transport. The quality of high speed rail transportation attracts growing interest in using it for travelling between cities. In 1990-2009, high speed rail transportation in the EU-27 increased from 15.2 bn pkm to 104.1 bn pkm (Table 6).

Table. 5. Passenger transport in the European Union

	Passenger Cars	P2W	Bus & Coach	Railway	Tram & Metro	Air	Sea	Total
Passenger Transport [1000 m pkm]								
1998	4 136.7	128.8	512.5	350.6	73.5	409.0	43.1	5 654.2
1999	4 240.0	132.3	515.2	358.6	75.1	425.0	42.6	5 788.8
2000	4 321.1	134.4	518.2	370.7	77.2	457.0	41.7	5 920.3
2001	4 404.7	137.9	519.8	372.7	77.8	453.0	42.0	6 007.9
2002	4 479.2	138.4	518.9	365.6	78.5	445.0	41.5	6 067.0
2003	4 510.3	142.1	520.1	361.9	79.3	463.0	41.2	6 117.9
2004	4 571.5	144.6	515.9	367.8	82.0	493.0	40.5	6 215.3
2005	4 563.8	147.9	516.4	377.1	82.4	527.0	39.5	6 254.1
2006	4 677.8	151.4	514.1	389.6	84.2	549.0	40.0	6 406.1
2007	4 756.9	152.0	527.2	396.7	86.0	572.0	41.0	6 531.9
2008	4 762.6	154.1	530.2	410.5	89.2	561.0	40.9	6 548.5
2009	4 780.8	156.5	510.4	404.9	88.8	522.0	40.0	6 503.3
Modal split [%]								
1998	73.2	2.3	9.1	6.2	1.3	7.2	0.8	100.0
1999	73.2	2.3	8.9	6.2	1.3	7.3	0.7	100.0
2000	73.0	2.3	8.8	6.3	1.3	7.7	0.7	100.0
2001	73.3	2.3	8.7	6.2	1.3	7.5	0.7	100.0
2002	73.8	2.3	8.6	6.0	1.3	7.3	0.7	100.0
2003	73.7	2.3	8.5	5.9	1.3	7.6	0.7	100.0
2004	73.6	2.3	8.3	5.9	1.3	7.9	0.7	100.0
2005	73.0	2.4	8.3	6.0	1.3	8.4	0.6	100.0
2006	73.0	2.4	8.0	6.1	1.3	8.6	0.6	100.0
2007	72.8	2.3	8.1	6.1	1.3	8.8	0.6	100.0
2008	72.7	2.4	8.1	6.3	1.4	8.6	0.6	100.0
2009	73.5	2.4	7.8	6.2	1.4	8.0	0.6	100.0
Modal split for inland modes [%]								
1998	80.3	2.5	10.3	7.2	1.5	–	–	100.0
1999	80.5	2.5	10.2	7.1	1.5	–	–	100.0
2000	80.6	2.5	10.1	7.0	1.4	–	–	100.0
2001	80.8	2.5	10.0	6.8	1.4	–	–	100.0
2002	80.9	2.5	9.8	6.8	1.4	–	–	100.0
2003	80.8	2.5	9.7	6.9	1.4	–	–	100.0
2004	81.0	2.5	9.6	6.9	1.4	–	–	100.0
2005	81.3	2.5	9.4	6.6	1.4	–	–	100.0
2006	81.4	2.6	9.4	6.5	1.4	–	–	100.0
2007	81.4	2.6	9.2	6.6	1.5	–	–	100.0
2008	81.2	2.6	9.2	6.7	1.5	–	–	100.0
2009	81.4	2.6	8.9	6.8	1.5	–	–	100.0

Table 5. Cont'd

	Passenger Cars	P2W	Bus & Coach	Railway	Tram & Metro	Air	Sea	Total
Changes [Year 1998 = 100%]								
1998	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1999	102.5	102.7	100.5	102.3	102.1	103.9	98.8	102.4
2000	104.5	104.4	101.1	105.7	104.9	111.7	96.8	104.7
2001	106.5	107.0	101.4	106.3	105.8	110.8	97.4	106.3
2002	108.3	107.4	101.2	104.3	106.8	108.8	96.3	107.3
2003	109.0	110.4	101.5	103.2	107.9	113.2	95.6	108.2
2004	110.5	112.3	100.7	104.9	111.4	120.5	94.0	109.9
2005	110.3	114.9	100.8	107.6	112.1	128.9	91.6	110.6
2006	113.1	117.6	100.3	111.1	114.5	134.2	92.8	113.3
2007	115.0	118.0	102.9	113.2	117.0	139.9	95.1	115.5
2008	115.1	119.6	103.4	117.1	121.2	137.2	94.9	115.8
2009	115.6	121.5	99.6	115.5	120.7	127.6	92.7	115.0

Source: Own study on the basis EU Energy and Transport in Figures (2010).

Table. 6. High speed rail transport [1000 m pkm]

Year	Belgium	Czech R.	Germany	Spain	France	Italy	Holland	Portugal	Slovenia	Finland	Sweden	UK	EU-27
1990	–	–	–	–	14.92	0.30	–	–	–	–	0.01	–	15.23
1991	–	–	2.00	–	17.87	0.40	–	–	–	–	0.09	–	20.36
1992	–	–	5.20	0.40	18.96	0.40	–	–	–	–	0.15	–	25.11
1993	–	–	7.00	0.90	18.93	0.50	–	–	–	–	0.27	–	27.60
1994	–	–	8.20	0.90	20.51	0.80	–	–	–	–	0.31	–	30.72
1995	–	–	8.70	1.29	21.43	1.10	–	–	–	–	0.42	–	32.94
1996	0.32	–	8.85	1.10	24.79	1.30	0.03	–	–	0.02	1.10	–	37.52
1997	0.56	–	10.07	1.30	27.58	2.40	0.07	–	–	0.05	1.33	–	43.36
1998	0.79	–	10.16	1.52	29.98	3.64	0.09	–	–	0.06	1.61	–	47.83
1999	0.80	–	11.59	1.67	32.36	4.46	0.10	–	–	0.05	1.81	–	52.86
2000	0.87	–	13.93	1.94	34.75	5.09	0.11	–	–	0.07	2.05	–	58.80
2001	0.89	–	15.52	2.08	37.40	6.76	0.19	–	–	0.06	2.23	–	65.13
2002	0.91	–	15.26	2.18	39.86	7.08	0.20	–	–	0.14	2.39	–	68.01
2003	0.88	–	17.46	2.03	39.60	7.43	0.66	–	–	0.20	2.40	–	70.66
2004	0.94	0.00	19.60	2.09	41.44	7.93	0.66	0.44	–	0.16	2.42	0.44	76.11
2005	0.98	0.01	20.85	2.32	43.13	8.55	0.69	0.49	–	0.31	2.33	0.45	80.11
2006	1.00	0.15	21.64	2.70	44.85	8.91	0.73	0.51	–	0.44	2.49	0.90	84.32
2007	1.02	0.33	21.92	2.59	47.97	8.82	0.80	0.51	–	0.58	2.78	1.39	88.70
2008	1.08	0.25	23.33	5.48	52.56	8.88	0.87	0.53	0.01	0.62	2.99	0.99	97.60
2009	1.06	0.24	22.56	11.51	51.86	10.75	0.92	0.53	0.02	0.60	3.05	1.01	104.10

Source: Own study on the basis EU Energy and Transport in Figures (2010).

The dynamic rise in high speed rail transportation balances the declining market share of the conventional railways. In 1998-2009, when transportation by conventional railways remained virtually steady. Their market share shrank from 5.4% to 4.6%. At the same time, the share of high speed rail transportation climbed from 0.8% to 1.6% (Table 7). The growth dynamics of high speed rail transportation greatly exceeded economic growth in 1998-2009. It was also much greater than the overall growth of transport and mobility at the time (Fig. 3).

Table. 7. Railway passenger transport in EU27

	Passenger transport [1000 m pkm]			Share in passenger transport market [%]		
	Total railway	Conventional railway	High speed railway	Total railway	Conventional railway	High speed railway
1998	350.60	302.78	47.83	6.2	5.4	0.8
1999	358.60	305.74	52.86	6.2	5.3	0.9
2000	370.71	311.91	58.80	6.3	5.3	1.0
2001	372.74	307.61	65.13	6.2	5.1	1.1
2002	365.57	297.57	68.01	6.0	4.9	1.1
2003	361.89	291.23	70.66	5.9	4.8	1.2
2004	367.82	291.71	76.11	5.9	4.7	1.2
2005	377.15	297.03	80.11	6.0	4.7	1.3
2006	389.60	305.28	84.32	6.1	4.8	1.3
2007	396.71	308.02	88.70	6.1	4.7	1.4
2008	410.54	312.93	97.60	6.3	4.8	1.5
2009	404.88	300.78	104.10	6.2	4.6	1.6

Source: Own study on the basis EU Energy and Transport in Figures (2010).
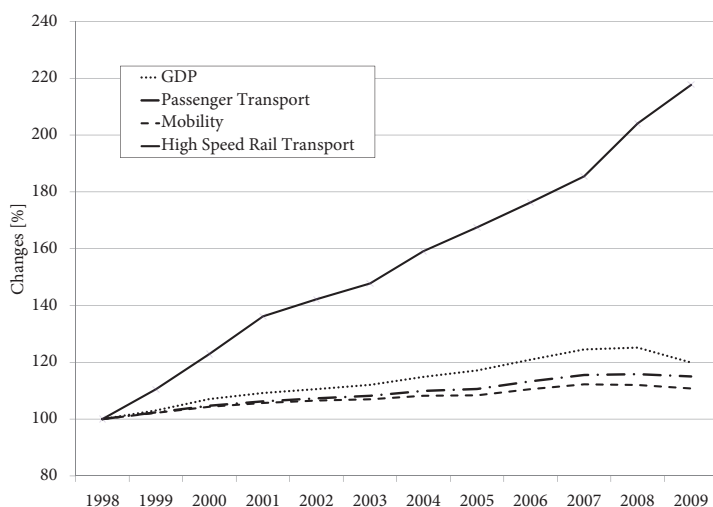
Fig. 3. Dynamics of GNP and passenger transport changes
Source: Own study on the basis of EUROSTAT data.

The extension of rail tracks adapted to high speed trains is a major factor determining their fast growth. Such lines certainly make for more attractive travel and invite passengers. This is not the only factor, however. By comparing length of tracks in the particular periods and transport volume fluctuations, one can note substantial transport growth along unchanged track distances. Let us take France as an example. The high speed tracks measured 1281 km in 1995-2000. In the same time, fast train transportation rose by 13.3 bn pkm, i.e. by 62%. Similar development could be observed in 2001-2006, when high speed lines were 1540 km long and transportation increased by 7.5 bn pkm or 20% (Dyr, 2011).

The high speed rail statistics refer to 12 out of 27 EU member states. Therefore, the states having such lines need to be taken into account first of all. Such an analysis was undertaken with regard to four states where new high speed lines were in operation as long as the early 1990s at the latest, i.e. France, Germany, Spain, and Italy. Calculation results indicate (Fig. 8) that the average shares of high speed rail in three of these states are much higher than the EU averages. Spain exhibits a somewhat lower share as rollout of high speed tracks there is insufficient. The first high speed line in Spain was commissioned in 1992, that is, 10 years later than in France. Density of high speed tracks in Spain averaged 0.93 km/1000 km^2 in 1992-2002. In France, the density in the same period rose from 1.31 km/1000 km^2 to 2.38 km/1000 km^2. Investment in the high speed systems in Spain is most likely to be felt in the second decade of the 21st century.

The average shares of high speed rail do not reflect their true significance in the transport market. Where high speed connections are available, their market share is substantially greater. In Germany, for instance, the average share of high speed rail in the passenger transport market reached 2.3% while its share ranged from 51% to 58% in the four connections where high speed trains were operated (Fig. 4).

These figures suggest the development of high speed rail system is a key factor driving up the share of this environment-friendly transport sector. As a result, it contributes towards achievement of the European transport policy goals and realisation of the strategy for sustainable development. This is mainly due to:
– the relatively low level of land occupation (3.2 ha/1 km of the line versus 9.3 ha/1 km of a motorway, on average),
– high energy efficiency (circa 3.4 times greater than private cars and 8.5 times greater than air transport).
– low emissions of CO_2.
– high safety levels,
– low external costs (approx. 9 times lower than those generated by private cars and 5 times lower than in air transport) (Barrón de Angoiti, 2010).

High speed rail investment is also a transport policy priority in the coming decades of the 21st century. Construction of more than 11 000 kms of new

lines in Europe is forecast till 2025 (Table 8). A new connection Warsaw – Łódź – Wrocław/Poznań is scheduled for the same period in Poland. It is the only planned new high speed line to be constructed in Central Europe.
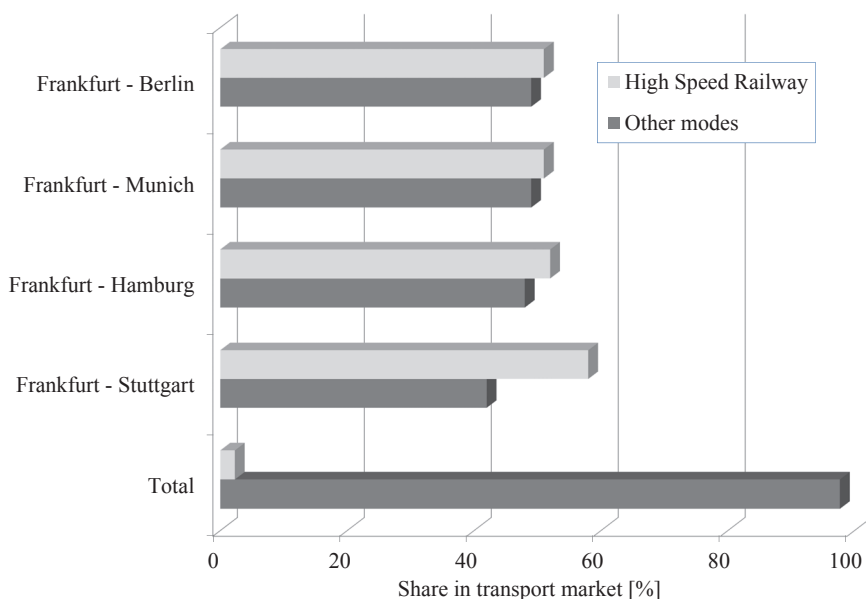

Fig. 4. Rail market shares. Passenger transport in Germany

Source: Garre (2010).

Table. 8. High speed lines in the world

	Track length [km]			
	Existing (11.01.2011)	Under construction	Planned	Total in 2025
Europe	6637	2427	8705	17769
Asia	7701	7076	6683	21460
Other continents	362	200	2206	2768
Total worldwide	14700	9703	17594	41997

Source: Own study on the basis UIC (2011).

At the turn of the 20th and 21st centuries, the share of road transport in Central Europe, in respect of both passenger and freight transport, was much lower than in the European Union. Growth dynamics of road transportation in the region were significantly higher than the European Union average in the first decade. In effect, the share of road transport in freight and passenger transport market rose in all Central European countries (Tables 9 and 10).

Table. 9. Share of the road and railway transport in Central Europe freight market transport

	1998	2001	2004	2009
Road transport				
EU-27	73.5	71.5	72.5	73.1
Poland	49.1	55.2	60.1	73.4
Estonia	38.4	35.3	32.7	47.3
Latvia	24.0	22.2	22.8	25.4
Lithuania	40.0	46.1	46.2	51.4
Slovak Republic	60.3	43.4	52.6	69.3
Czech Republic	64.4	66.9	72.7	75.5
Railway transport				
UE-27	20.4	17.7	17.3	15.6
Poland	43.0	34.1	30.6	17.6
Estonia	61.6	64.7	67.3	52.7
Latvia	76.0	58.7	57.5	58.7
Lithuania	59.0	43.1	43.8	34.4
Slovak Republic	39.7	34.4	27.5	17.4
Czech Republic	35.6	28.9	23.8	21.5

Source: Own study on the basis EU Energy and Transport in Figures (2010).

Table. 10. Share of the road and railway transport in Central Europe passenger market transport

	1998	2001	2004	2009
Road transport				
EU-27	80.8	81.0	81.4	81.2
Poland	70.4	73.1	77.3	85.8
Estonia	70.5	71.4	74.0	78.7
Latvia	75.4	78.6	75.5	85.4
Lithuania	85.4	88.5	88.6	92.0
Slovak Republic	54.8	66.0	68.9	76.9
Czech Republic	66.4	65.8	68.9	69.5
Railway transport				
UE-27	6.8	6.9	6.6	6.9
Poland	10.3	10.4	8.0	5.6
Estonia	2.7	1.9	1.8	1.9
Latvia	8.0	4.6	5.3	3.9
Lithuania	3.1	1.8	1.3	0.9
Slovak Republic	8.8	7.7	6.1	6.6
Czech Republic	7.8	7.6	6.7	6.2

Source: Own study on the basis EU Energy and Transport in Figures (2010).

Trends in the transport market are particularly adverse in Poland. In 1998-2009, the share of road transport in freight transportation market increased from 49.1% to 73.4% and its share in the passenger transport market rose from 70.4% to 85.8%. These tendencies will be difficult to avert in the coming decade as they are helped along by infrastructure investments. Allocation of resources from EU funds as part of operational programmes for 2007-2013 includes € 15.1 bn of road investment and a mere € 5.5 bn of rail investment.

4. Improvement of transport safety

In 2000, nearly 1.5 m accidents involving 56,500 dead and nearly 2 m injured took place on European Union (EU-27) roads (Road safety evolution in EU, 2009). In the circumstances, improvement of road transport safety became a primary objective of the European transport policy. The European Commission stipulated in its White Paper of 2001 that the numbers of road accident casualties should diminish by half till 2010. This aim is a direct consequence of the strategy for sustainable development. Instruments for harmonising penalties and promotion of new technologies were proposed in order to attain it.

The scope of inspections and penalties varies across the European Union member states. Drivers know where they have to follow the rules and where they can act with impunity. Drivers losing their licences in one country happen to obtain them in another EU member state. Penalties must therefore be harmonised across the European Union. Given certain offences, penalties (immediate immobilisation of vehicle, forfeiting the driver's licence) should be imposed promptly regardless of a driver's nationality and location of the offence.

Harmonisation of inspections and penalties should apply in particular to speeding and driving under the influence of alcohol, drugs, and medication affecting the ability to drive safely. 17 January 2001, the Commission adopted a recommendation encouraging member states to institute a maximum blood alcohol limit of 0.5 mg/ml for drivers in general and 0.2 mg/ml for professional, motorcycle and inexperienced drivers.

Traffic safety statistics concerning the European Union confirm that alcohol is the cause of 25% accidents. It is also estimated that driver blood alcohol levels are a minimum of 0.5 mg/ml in 1% of the overall traffic volume. Research confirms a correlation between alcohol content in blond and risk of accidents. Where the level is 0.8 mg/ml (which is acceptable in three EU countries: the United Kingdom, Ireland, and Luxembourg), the risk of accident is 2.7 times greater than in a sober driver. The alcohol content of 1.5 mg/ml makes the risk 22 times greater than in a sober driver. Alcohol also seriously affects consequences of accidents. The risk of a fatal accident in drivers whose alcohol blood content has reached 1.5 mg/ml is 200 times greater than in sober drivers

(SafetyNet, 2009). The dependence between the risk of accident and blood alcohol content is illustrated in Figure 5. Alcohol consumption is a particularly grave risk factor among young drivers (Fig. 6). The relative risk of a fatal accident where blood alcohol content is 0.5 mg/ml in a driver who is 16-19 is nearly 60 times greater than in a driver above 30.
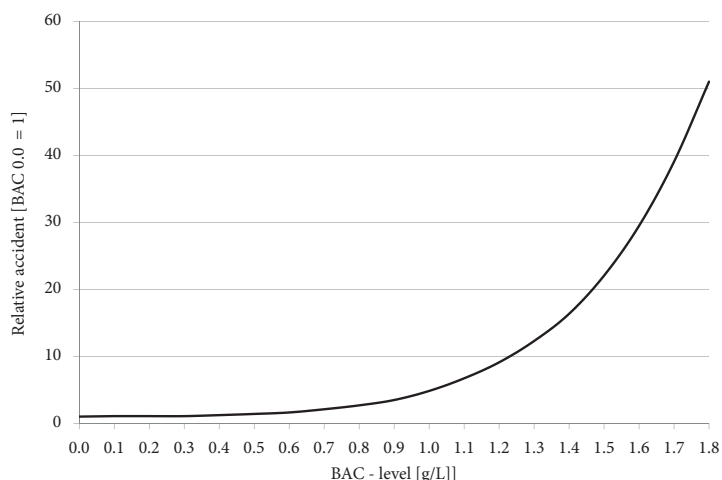

Fig. 5. Relative rate for drink drivers to be involved in a crash as their BAC-level increases

Source: Compton, Blomberg, Moskowitz, Burns, Peck, Fiorentino (2009).
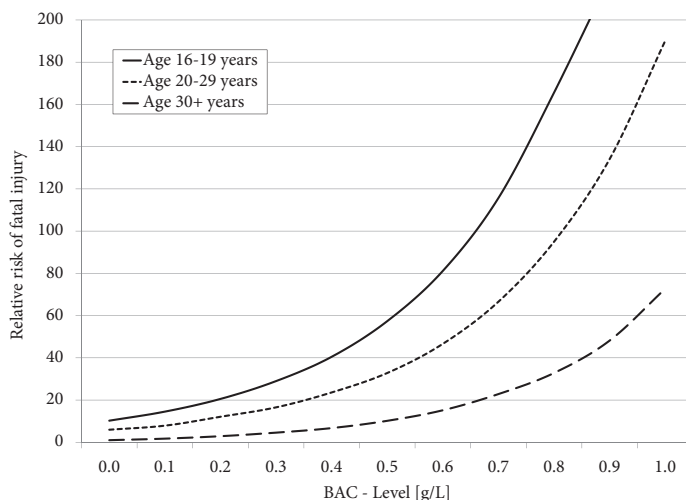
Fig. 6. Relative rate of fatal injury and BAC-level per age group

Source: Keall. Frith. Patterson (2009.

Consumption of drugs and some medications also increases the risk of accidents. Combining alcohol and drugs has an especially adverse effect on road safety. Research in the Netherlands and France indicates that even a low alcohol content (0.5-0.8 mg/ml) where drugs have been taken increases the relative risk of accident by approx. 50% (SafetyNet, 2009; Mathijssen, Houwing, 2005).

Young people most often fall victim to accidents. In 2005, nearly 6000 individuals aged 15-24 died on roads of fourteen European Union countries (EU-15 less Germany) (Fig. 7). This constituted 22.8% of all road fatalities. It should be noted that accidents are the single most common cause of death in this age group.
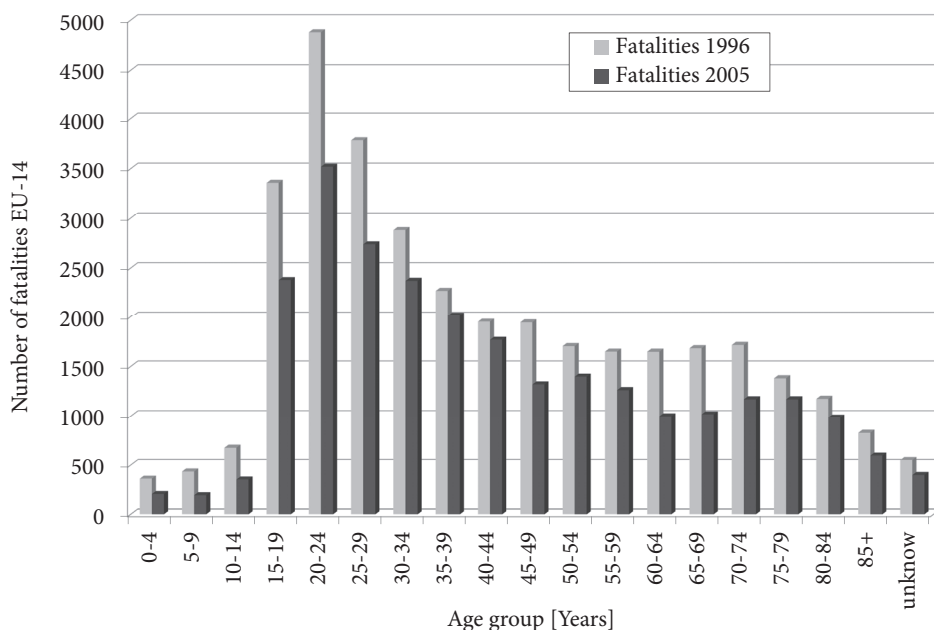
Fig. 7. Fatalities by age group for EU-14

Source: Traffic Safety Basic Facts (2007).

Promotion of new technologies is a major area of the European transport policy with regard to improving road safety. In this respect, the Commission takes steps towards application of an integrated approach to road safety, including projects and car design technologies (including accident prevention and vehicle-infrastructure cooperation technologies, 'e-Safety'), infrastructure, and behaviour of road users (COM (2006) 314). In 2009, a ruling of the European Parliament and of the Council (EC) 661/2009 was adopted. It governs technical requirements of motor vehicle type approval with regard to a range of safety and environment protection elements.

According to this ruling, vehicles must be designed, built, and assembled in such a way as to minimise the risk of injuries to passengers and other road users. Manufacturers have to guarantee that vehicles fulfil the requirements laid down in the ruling and its executive instruments, in particular those concerning:
– vehicle structure integrity, including impact tests,
– systems to aid the driver's control of the vehicle, including steering, braking and electronic stability control systems,
– systems to provide the driver with visibility and information on the state of the vehicle and the surrounding area, including glazing, mirrors and driver information systems,
– vehicle lighting systems,
– vehicle occupant protection, including interior fittings, head restraints, seat belts, 'ISOfix' anchorages or built-in child restraints and vehicle doors,
– the vehicle exterior and accessories,
– electromagnetic compatibility,
– audible warning devices,
– heating systems,
– devices to prevent unauthorised use,
– vehicle identification systems,
– masses and dimensions,
– electrical safety,
– gear shift indicators.

Actions taken by the European Commission and the individual member states bring measurable effects. In 2008, total road accident fatalities in EU-27 dropped from 56 459 to 38 875, i.e. by 31.14%. At the same time, the number of accidents declined from 1 461 700 to 1 228 200, or by 16%, and the number of injuries from 1 986 600 in 2000 to 1 623 500 in 2008, that is, by 18.1%. Despite the progress on improvement of the road safety, the target set for 2010 is unlikely to be reached (Fig. 8). If the existing trends continue, 31-34K people are expected to die on EU roads in 2010. This means that the number of fatalities will decline by 38-44% during 2000-2010.

Roads in Central Europe are among the most dangerous in the European Union (Fig. 9). By referring the number of road accident casualties to the population, road transport and number of cars, it can be said that the relative safety level in Poland is approximately twice lower than in the EU-27 average and about 3-4 times lower than in the UK, Sweden or the Netherlands.

Rollout of the road system, in particular, motor and express ways, is a factor improving safety of road traffic. Statistics confirm a high correlation between density of such roads and rate of accidents. Fewer accidents take place in countries with dense road systems capable of segregating traffic.
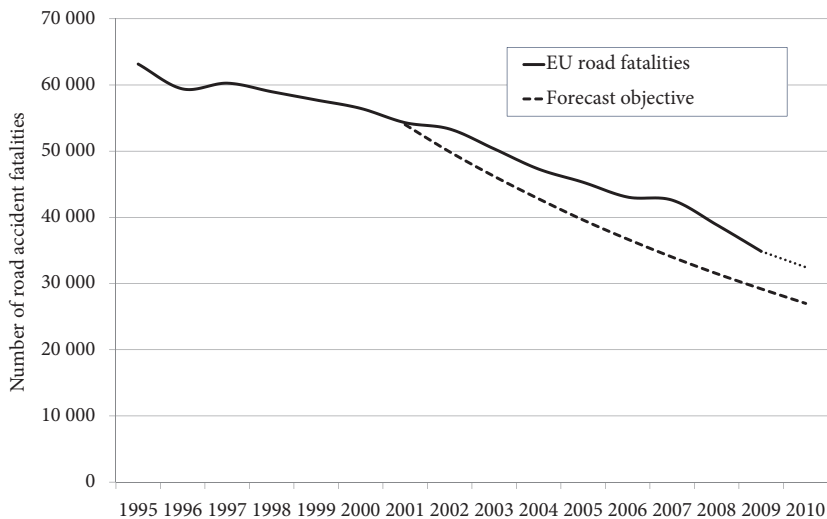
Fig. 8. Evolution of road accident fatalities in the EU-27

Source: Own study on the basis EU Energy and Transport in Figures (2010).
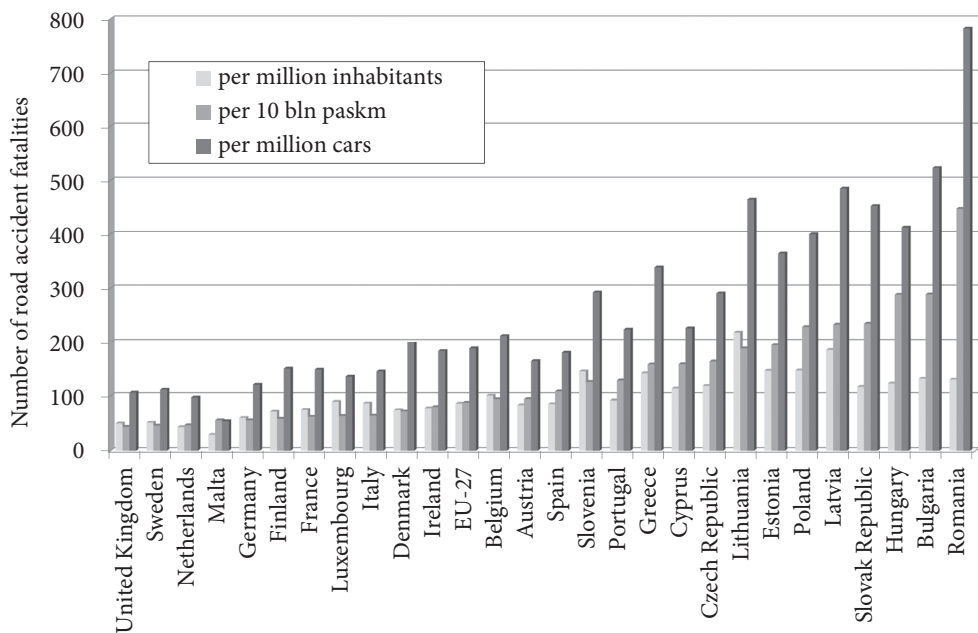

Fig. 9. Fatality rates in EU countries

Source: Own study on the basis EU Energy and Transport in Figures (2010).

Accidents have not only social but also significant economic dimensions as they generate definite costs. Value of human life is used in their estimates, assessed on the basis of two fundamental methodologies:

– constructive (direct) which measures sum total of revenue that can be generated in an individual lifetime,

– disclosed preferences (indirect) which identifies value of life with a monetary compensation expected for an increased risk of death (Accocela, 2002).

Valuations of human life may give rise to ethical dilemmas. Value of life is identified with revenue attained by a person according to the first method. As a result, pensioners are assigned zero value – their death does not lead to lost income. Under the second method, value of a life depends on somebody's wealth. A rich person expects a higher compensation for the risk of death than a poor individual. Life of somebody with higher income commands a greater value. According to both these methods, therefore, value of a human life is dependent on economic development of a country and directly tied to *per capita* GNP. This means that value of a human life in Central Europe is much lower than in Western Europe (Fig. 10).
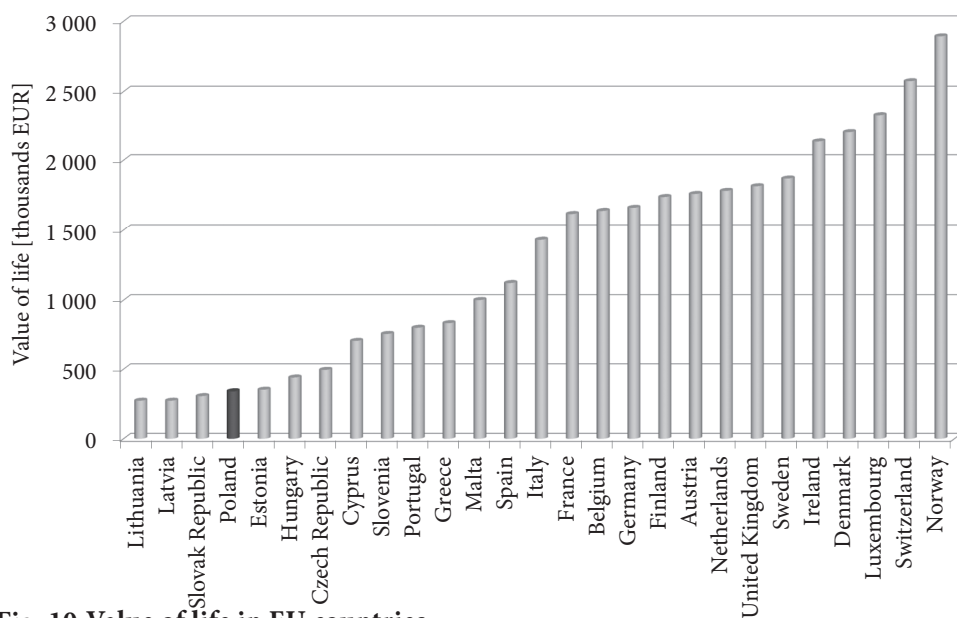
Fig. 10. Value of life in EU countries
Source: HEATCO (2006).

Total costs of road accidents in Poland in 2000-2009 were estimated in consideration of accident statistics and valuation of human life and other costs of

accidents (Jaspers, 2008). Their total value in the first three years of the current EU financial perspective is calculated at nearly PLN 60 bn. On the other hand, approx. PLN 75 bn will be spent on road and rail investments that could improve safety on Polish roads in the entire perspective (2007-2013).

Table. 11. External cost of road accidents in Poland

	Number of			Cost [m PLN]			
	accidents	accident fatalities	injuries	materials	fatalities	injuries	Total
2007	49 536	5 583	63 224	708.2	7 614.4	12 203.8	20 526.3
2008	49 054	5 437	62 097	701.3	7 415.3	11 986.2	20 102.8
2009	44 196	4 572	56 046	670.0	6 612.5	11 472.2	18 754.6
Total	142 786	15 592	181 367	2 079	21 642	35 662	59 384

Source: Own study on the basis of Komenda Główna Policji (2010) and JASPERS (2008).

5. Climate changes and environment protection challenges

Improving the condition of natural environment and counteracting climate changes are major policy areas of the European Union. Environment protection standards in the European Union are one of the strictest worldwide. Most pressing problems include: struggle against climate changes, protection of biodiversity, reduction of health problems due to environment pollution, and more responsible use of natural resources.

Increasing consumption in the European Union member states is a key factor raising emissions of harmful substances (Fig. 11). The current model of consumption exacerbates negative impact on the environment as spending rises on consumption categories associated with intensive environment impacts, in particular, on transport and energy consumption by households (EEA, 2007).

Actions taken by the European Union member states have led to a significant reduction of greenhouse gas emissions. Total GHG emissions (without land use, land-use change and forestry) in the EU-27 decreased by 17.4 % between 1990 and 2009 (974 million tonnes CO_2-equivalents) (EEA, 2011).

Energy and transport sectors are major emitters (Fig. 12) which generate half the emissions in the EU member states. While the energy-producing sector can be observed to lower its emissions, the transport sector emissions continue to rise (Fig. 13) due mainly to increasing demand for both passenger and freight transport. The European Union exhibits a distinct correlation – demonstrated in the initial part of this article – between rising demand for transport and economic growth.
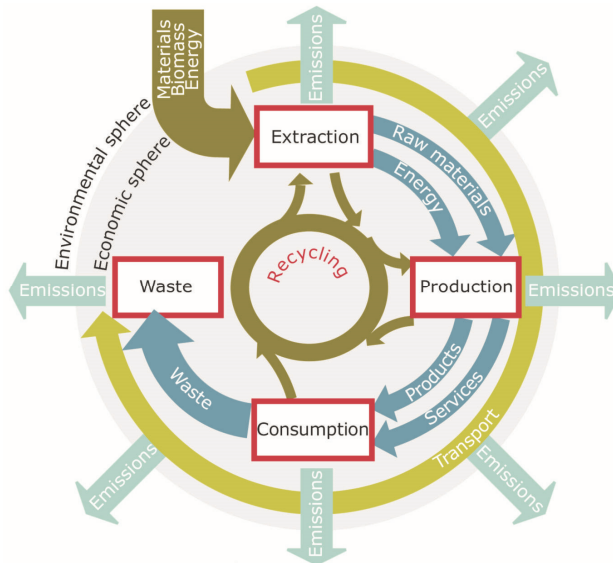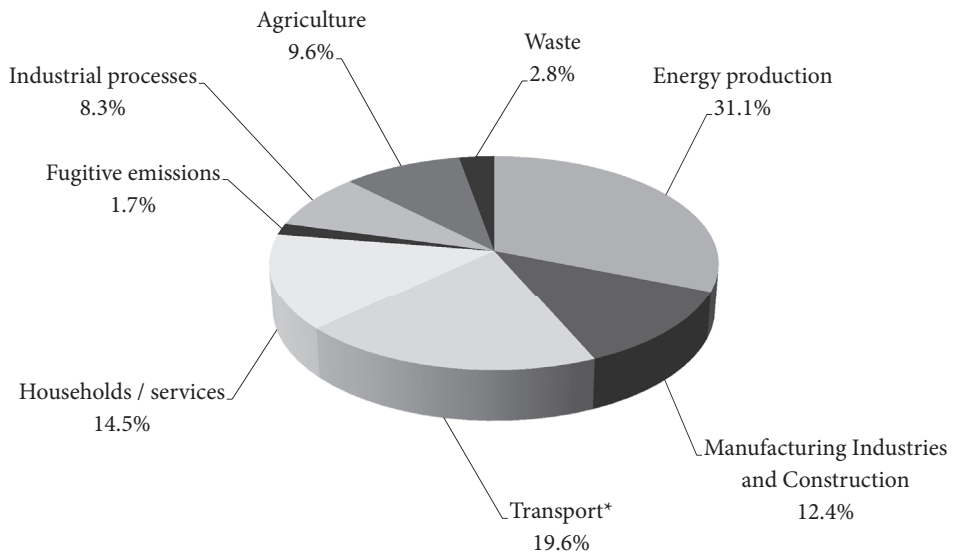
Fig. 11. Life-cycle chain from extraction – through production – to consumption and waste

Source: (EEA, 2007).

* – excludes international aviation and shipping = 6% of total GHG emissions.

Fig. 12. Total greenhouse gas emissions by sector in EU-27 in 2008

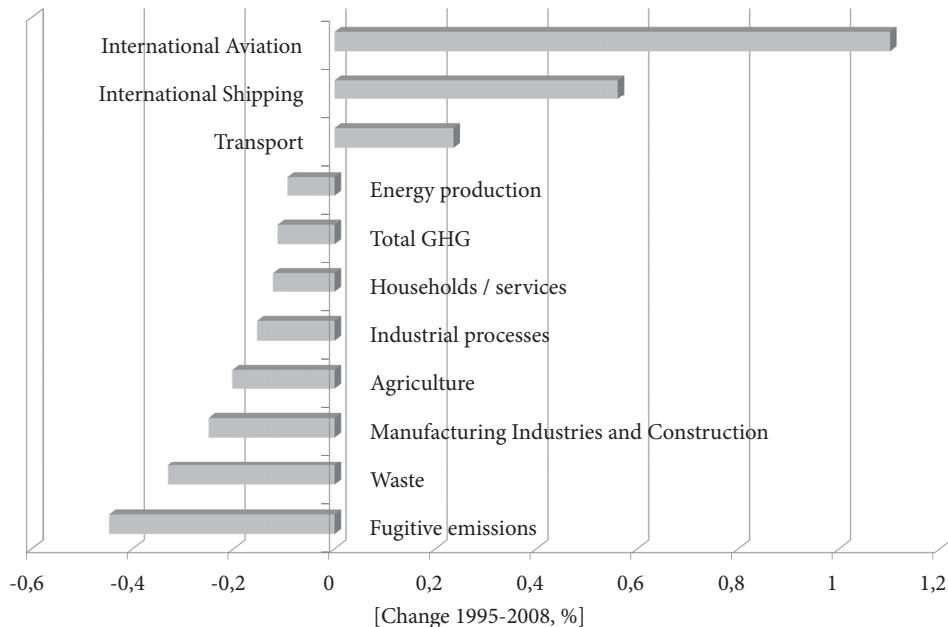Source: Own study on the basis database of European Environment Agency.

Fig. 13. Change of greenhouse gas emissions by sector in EU-27

Source: Own study on the basis database of European Environment Agency.

In an attempt to realise the idea of sustainable development, the European Commission formulated a package of actions to develop the transportation system that would be friendly to the natural environment in 2008 (The Greening transport package, 2010). The package consists of five parts:

⇨ Greening Transport Communication: summarises the whole package and sets out what new initiatives the Commission will take in this field until the end of 2009 (COM (2008) 433).

⇨ Greening Transport Inventory: describes the large amount of EU action already taken to green transport and on which this package builds (SEC(2008)2206).

⇨ Strategy to Internalise the External Costs of Transport: focuses on making transport prices better reflect their real cost to society so that environmental damage and congestion can be reduced while boosting the efficiency of transport and ultimately the economy as a whole (COM(2008) 435; SEC(2008)2207).

⇨ Proposal for a Directive on road tolls for lorries: would enable Member States to reduce environmental damage and congestion through more efficient and greener road tolls for lorries. Revenue from the tolls would be used to reduce environmental impacts and cut congestion (COM/2008/0436).

⇨ Rail Transport and Interoperability communication: sets out how to reduce the perceived noise from existing rail freight trains by 50% and the measures the Commission and other stakeholders will need to take in the future to achieve this (COM(2008)432).

Measures taken in the European Union to reduce the adverse impact of transport on the natural environment comprise a broad range of instruments applicable to the climate change, local environment pollution, noise, congestion, and safety.

With regard to factors affecting the climate change, the Commission proposed means of reducing CO_2 emissions from new cars, including aviation in the EU Emissions Trading System (EU ETS), introduction of annual road and registration fees for cars to be diversified in terms of CO_2 levels, and guaranteeing that all means of transport exempt from the ETS will contribute to meeting of national targets of greenhouse gas emissions.

Counteracting local environment pollution is a key area of the European Commission's activity. As part of the common market, means of reducing air pollution have been developed which broadly differ for the particular modes of transport yet focus on lowering emissions by new vehicles (EURO standards), ships or leisure planes. Maximum contents of certain fuel pollutants have been defined, e.g. sulphur levels in marine transport fuels and lead content in petrol, and regulations have been set regarding lowering of emissions arising from fuel storage and distribution. Requirements for reducing water pollution apply to water transport. All modes of transport are subject to general regulations of acceptable methods and locations of waste disposal, detailed requirements apply to certain types of road vehicles and their elements (e.g. tyres and batteries).

The Commission has proposed applying methods considering energy consumption and cost of CO_2 and pollutant emissions in the entire lifecycle of a vehicle to public tenders for cars, trucks, buses, and lorries. In addition, most new transport infrastructure projects are governed by environment impact assessment regulations and some are subject to nature protection legislation as well.

EU noise reduction measures have so far focussed on introduction of an overall framework of noise level assessment and reduction of noise emissions from all types of overland motor transportation (e.g. technical interoperability specifications in the rail sector). There are also noise limits for airships and stricter restrictions can be introduced at some EU airports. Noise maps must be developed for airports, large cities (and their ports), as well as high traffic intensity roads and motorways, and steps should be taken to reduce noise where necessary. Tyre noise limits were introduced in 2009, applicable to new tyres.

EU financing has contributed to extended capacity of the existing and construction of new infrastructure, where EU policies aimed at moving traffic to less congested modes of transport while developing joint rules of fee collection. There are fee-collection instruments for lorries using the infrastructure and de-

tailed requirements of rail infrastructure. The Commission has additionally proposed to collect airport fees. Railways, inland waterways, and marine transport are the largest recipients of funds for trans-European infrastructure and Marco Polo programme. This is intended to encourage traffic transfers from roads to these transport modalities. Measures to enhance productivity of infrastructure have been introduced to air and rail transport sectors, work is also under way on technological improvements in road transport.

Internalisation of external costs is expected to become of special importance to actions reducing negative effect of transport on the natural environment. It is the focus of actions proposed for implementation by the European Commission (COM(95)691). Absence of such measures may lead to marked escalation of negative effect of transport on the natural environment and congestion (SEC(2008)2208).

Taxes, toll fees (or fees for infrastructure use), and emission trade are key instruments for the internalisation of external costs. Their selection should be appropriate to the nature of external costs generated since each of their components has unique features that require application of relevant economic instruments. Some external costs relate to use of infrastructure and change over time and place. These include congestion, air pollution, noise, and accidents, which are largely local and vary in time, space and type of a system. Application of diversified fees may best address these specific characteristics, therefore. Climate changes do not have a local dimension, on the other hand. Greenhouse gas emissions do not depend on a time or location but relate to fuel consumption. In the event, instruments directly linked to that consumption can prove the proper economic instrument, such as fuel tax or a system of CO_2 emissions trade (COM(2008) 435).

Greenhouse gas emissions by the transport sector increase in Central Europe just like in the EU-27. Dynamics of this growth are higher than EU-27 average, however (Fig. 14), principally due to higher growth dynamics of road transport in this region.

Use of alternative fuels, including those from renewable sources, is an important way of reducing greenhouse gas emissions and other air pollutants in line with the strategy for sustainable development. The Directive 2003/30/EC obliged the EU member states to take steps to increase use of and access to energy from renewable sources. It was agreed that the share of renewable energy in the overall consumption of energy by the transport sector should reach a minimum of 2% in 2005 and 5.75% in 2010. Research conducted in 2006 suggests only two countries (Germany and Sweden) had attained the use levels of renewable energy stipulated for 2005 (COM(2006)845).

Use of biofuels has brought measurable economic effects that include:
– security of supply by decreasing fossil fuel and diversifying fuel consumption in the EU – in 2007 the use of biofuels in the EU replaced 1 593 million litres

of gasoline and 7 730 million litres of diesel. This is almost 3% of the total EU fuel consumption in road transport,
– generating additional jobs – in 2005, non-grid biomass use accounted for 600 thousand employees, biomass grid and biofuels contributed over 100 thousand employees and biogas around 50 thousand,
– the net greenhouse gas savings achieved in the EU from biofuels placed on the market and consumed in 2006 and 2007 amounted to 9.7 and 14.0 Mt CO_2-eq respectively,
– contribution to increased intensification of agricultural production in the EU. which can increase pressure on the use of land with high biodiversity value and soil carbon stock and use of fertiliser (COM(2009) 192).
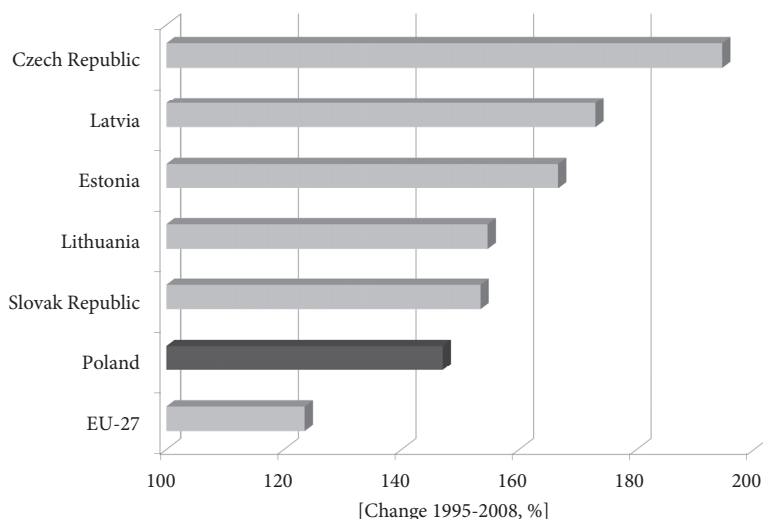

Fig. 14.Change of greenhouse gas emissions by transport sector
Source: Own study on the basis EU Energy and Transport in Figures (2010).

The positive effects of using biofuels encourages more intensive efforts for even further expansion of their share. The share of renewable energy in the overall gross energy consumption by the Community is expected to rise to 20% and by the transportation sector to 10% by 2020 (Directive 2009/28/EC). Possible adverse consequences of the more intensive production of energy-generating crops need to be noted, however. Using ever more extensive land areas for these crops may, in the long term, undermine food security of the European Union member states. As a result, dramatic price hikes of food products may not only affect living standards of the EU populations but also competitiveness of its economy.

Legal regulations intended to restrict the negative impact of transportation on the natural environment involve support for infrastructure of the transport

modes friendly to the environment. EUROSTAT figures indicate, however, that these investments primarily concerned road infrastructure in the last two decades. More than 24 000 kms of motorways and merely 4,700 kms of high speed railroads were constructed in 1990-2008. The overall distance of railways fell by nearly 20 000 kms in the same period. These adverse trends persist despite the declared support for the strategy of sustainable development and a European transport policy envisaging rollout of environment-friendly means of transport, including first of all railroads.
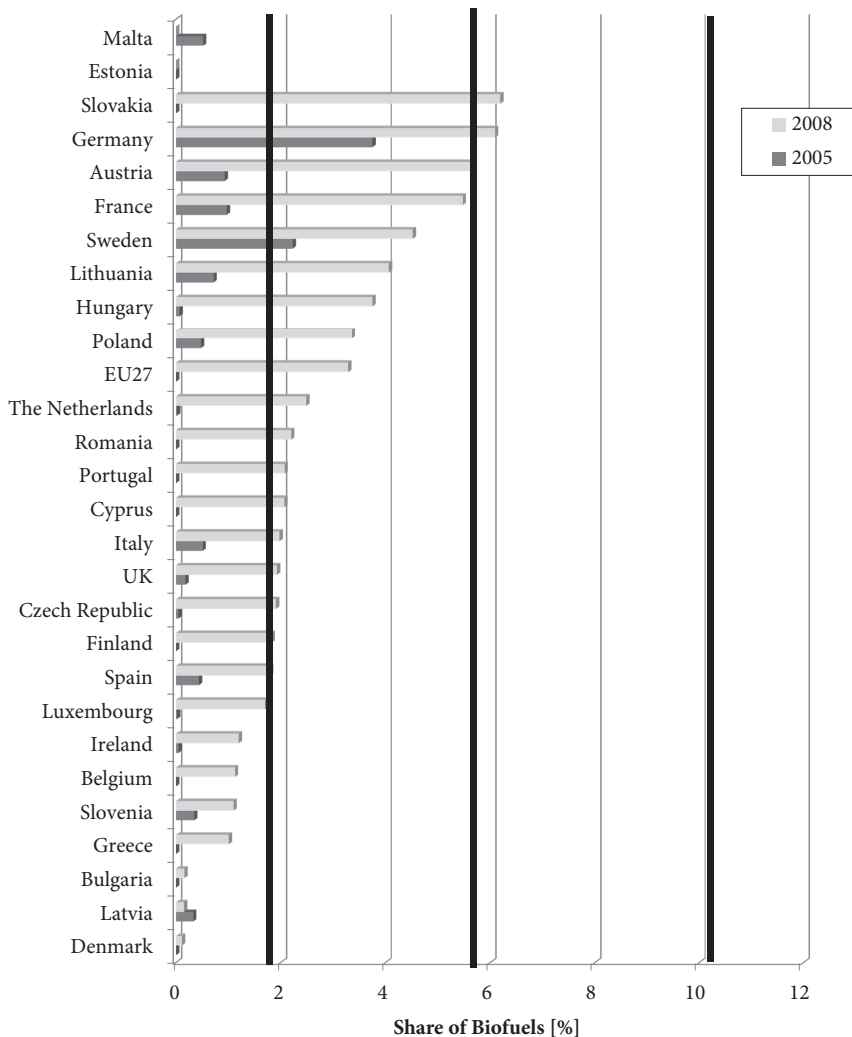

Fig. 15. **Share of biofuels in total final fuel consumption in transport sector**
Source: Own study on the basis EU Energy and Transport in Figures (2010) and MEMO/07/5.

Conclusion

Most economic decisions in a market economy are made in the real market and management processes are regulated by the market mechanism. Market regulation by public authorities – regardless of their level – should constitute an exception rather than a rule. The scope of regulation in the European Union is systematically increasing, however. Views of Milton Friedman, a Nobel Prize winner for economics, need to be cited in this connection. He said transport is among the most heavily regulated sectors of economy. It provides an example of a sector deformed by over-regulation beyond capability of effective competition (Friedman, 2006). It should be pointed out that economic regulation is often motivated not only by shortcomings of market mechanisms but also pressure of interest groups. They regard economic regulation as protection of their own interests and an opportunity for boosting their own wealth (Becker, 1983).

The rulings, directives, communications, and opinions referred to in this paper are but a fraction of the acquis communautaire relating to transportation. They help to outline essential directions of transformations in the sector. The vision of an EU transportation system incorporated in the strategy for sustainable development and successive editions of the European transport policy indicate growing commitment of public authorities to regulation of this economic sector. Their formulations and aims express the belief of their authors that issues of the transport sector can be solved by market regulation.

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Miscellanea

Dariusz J. Błaszczuk*

A NOTE ON THE INVESTMENT FUNDS' MANAGEMENT FEES[1]

Abstract

The aim of this paper is to discuss the real (gross) values of the management fees charged by the investment funds' managing firms in Poland as well as the difference between these values and the published ones on one hand and between them and the respective fees charged by the managing firms in Western European countries on the other.

To meet this aim the concept of the real (gross) rate of return on investment funds is presented first. Next the formulas are developed to compute values of this rate of return in terms of simple as well as compound interest rates assuming that the net rate of return of the investment fund as well as the net management fee are known.

On that basis the investigated real (gross) values of the management fees are computed for a number of sets of values of investment fund's net rates of return on one hand and the values of the published management fees on the other. These values are presented in the tables attached to the paper.

The paper ends with the considerations why investment funds' management fees charged by the managing firms operating on the Polish market are much higher than in Western European economies. Then follow answers and the two related questions: when the management fees on the Polish market will be reduced to the level of western European standards and what are the preconditions for the reduction of the management fees on the Polish market. The main conclusion is that the respective actions of the Polish Government are required to reduce these fees in favour of the whole economy and especially of the individuals.

JEL classification code: C19, G23

Keywords: management fee, investment funds .

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* Prof., Ph.D., The Department of International Business & Finance, Kazimierz Pulaski University of Technology and Humanities in Radom

[1] The origin of this paper is due to the discussion at my Ph. D. seminar with Ph. D. candidate Jacek Kuciński M. Sc. (Econ.) who noticed that there is the difference between the published management fees and the real ones and that they are extremely high in Poland.

Introduction

The net assets' value of every investment fund at the end of each and every working day (NAV_t) is invested next working day. In other words, we have series of values for any investment fund: NAV_1, NAV_2, ... , $NAV_{t'}$. Therefore, one can check easily effectiveness of management of each and every investment fund comparing its net assets' value on any day t = 2, 3, ... , t'+1 with its value on the previous day, namely:

$$\frac{NAV_2}{NAV_1} = (1 + r_1)^{1/365} \tag{1.1}$$

$$\frac{NAV_3}{NAV_2} = (1 + r_2)^{1/365} \tag{1.2}$$

$$\frac{NAV_{t'+1}}{NAV_{t'}} = (1 + r_{t'})^{1/365} \tag{1.t'}$$

where:
r_t is the yearly net rate of return of the given investment fund approximated on the basis of its net rate of return achieved on day t.

From (1.1) through (1.t') one can easily compute the net effectiveness of management of the given investment fund over a given period of time:

$$\frac{NAV_{t'+1}}{NAV_1} = (1 + r_1)^{1/365} \cdot (1 + r_2)^{\frac{1}{365}} \cdot ... \cdot (1 + r_{t'})^{1/365} \tag{2}$$

The same value can be obviously calculated directly as:

$$\frac{NAV_{t'+1}}{NAV_1} = (1 + r_{1/t'})^{t'/365} \tag{2'}$$

where:
$r_{(1/t')}$ is the yearly net rate of return of the given investment fund approximated on the basis of its average net rate of return achieved during the period from t = 2 to t = t'+1,

that is equivalent to:

$$\frac{NAV_{t'+1}}{NAV_1} = (1 + r_{g(t')})^{t'/365} \tag{2''}$$

where:
$1 + r_{g(t')}$ is geometric mean of series $1 + r_1$, $1 + r_2$, ..., $1 + r_{t'}$.

Therefore, after one year we have obviously:

$$\frac{NAV_{366}}{NAV_1} = (1 + r_g) \qquad (2''')$$

where:

r_g is the actual yearly net rate of return of the given investment fund.

However, one must remember that the managing firms charge investors with the management fee and it is not reflected in the formulas given above. Moreover, although the level of the management fee is published in the statues or other official document of each and every investment fund (let us call it net management fee), usually it is not even perceived by the individual investors. Furthermore, the real amount of management fee (let us call it gross management fee) is higher than the respective figure announced in this or other publication of the managing firm. We show further that difference between the real management fee and the published one depends upon the value of either the net or the gross rate of return of the given investment fund and the level of the net management fee. This difference depends also on the calculation method of the every day's management fee that may be based either on simple interest rate (as it is in practice) or on compound one (that would be more favorable for the investors). The respective figures of any investment fund for chosen values of the net rate of return and the chosen levels of the net management fee are presented as well.

Some considerations on the behavior of the managing firms on the Polish market with respect to the level of net management fees as compared with their behavior in this respect in the Western European economies conclude the paper.

All considerations in this paper are based on a 365/365 base. In case of a different base all the formulas given in the paper should be adjusted accordingly. However, different bases are not considered because whatever base is used, all considerations and conclusions given in the paper remain valid.

Similarly, in order to reflect the existence of the non-working days, all the formulas given in the paper should be adjusted substituting number 1 in the numerator of their exponents by the actual number of days expiring between the two consecutive working days. Having this in mind, all the formulas given in the paper are left unchanged because it does affect neither the considerations nor conclusions presented in the paper.

1. The real value of the management fee

To find the real management fee of any investment fund one must remember that:
1) the results of the investment of a given amount of money during the given day by the managing firm (gross assets' value – GAV) occur at the beginning of the next day:

$$GAV_{t+1} = NAV_{t'} \cdot (1 + g_t)^{1/365} \qquad (3)$$

where:

g_t is the yearly gross rate of return of the given investment fund approximated on the basis of its (unknown for the time being) gross rate of return achieved on day t;

2) the managing firm charges GAV_{t+1} with the respective part of the yearly management fee calculated on the basis of NAV_t. From the theoretical point of view it can be done using simple or compound interest rate. If the fee is calculated according to simple interest rate, the daily charge is equal to f/365 otherwise it equals to $f^{1/365}$;

3) next day the managing firm invests the GAV_{t+1} diminished by the respective part of the yearly management fee.

The real values of the management fee in the given two cases of the interest rate calculation methods are considered in details in the following two subsections.

1.1. Management fee in the case of the simple interest rate

In the case of a simple interest rate the formulas (1.1) through (1.t') must be transformed into the following equations:

$$NAV_2 = NAV_1 \cdot (1 + g_1)^{\frac{1}{365}} - NAV_1 \cdot \frac{f}{365} = NAV_1 \cdot \left[(1 + g_1)^{\frac{1}{365}} - \frac{f}{365}\right] \quad (4.1)$$

$$NAV_3 = NAV_2 \cdot \left[(1 + g_2)^{\frac{1}{365}} - \frac{f}{365}\right] \qquad (4.2)$$

$$NAV_{t'+1} = NAV_{t'} \cdot \left[(1 + g_{t'})^{\frac{1}{365}} - \frac{f}{365}\right] \qquad (4.t')$$

From (4.1) through (4.t') one can easily compute the net effectiveness of management of the given investment fund over a given period of time similarly to formula (2):

$$\frac{NAV_{t'+1}}{NAV_1} = \left[(1 + g_1)^{\frac{1}{365}} - \frac{f}{365}\right] \cdot \left[(1 + g_2)^{\frac{1}{365}} - \frac{f}{365}\right] \cdot \ldots \cdot \left[(1 + g_{t'})^{\frac{1}{365}} - \frac{f}{365}\right] \quad (5)$$

The same value can be obviously calculated directly as:

$$\frac{NAV_{t'+1}}{NAV_1} = \left[(1 + g_{1/t'})^{\frac{1}{365}} - \frac{f}{365}\right]^{t'} \qquad (5')$$

where:

$g_{(1/t')}$ is the yearly gross rate of return of the given investment fund approximated on the basis of the its gross rate of return achieved during the period from t = 2 to t = t'+1,

that is equivalent to:

$$\frac{NAV_{t'+1}}{NAV_1} = \left[(1 + g_{g(t')})^{\frac{1}{365}} - \frac{f}{365} \right]^{t'} \tag{5"}$$

where:

$1 + g_{g(t')}$ is geometric mean of series $1 + g_1$, $1 + g_2$, ..., $1 + g_{t'}$.

Therefore, after one year we have:

$$\frac{NAV_{366}}{NAV_1} = \left[(1 + g_g)^{\frac{1}{365}} - \frac{f}{365} \right]^{365} \tag{5'''}$$

where:

g_g is the yearly gross rate of return of the given investment fund,

that is obviously equal to $(1 + r_g)$ given by formula (2'''). Therefore:

$$\left[(1 + g_g)^{\frac{1}{365}} - \frac{f}{365} \right]^{365} = 1 + r_g \tag{6}$$

$$(1 + g_g)^{\frac{1}{365}} - \frac{f}{365} = (1 + r_g)^{\frac{1}{365}} \tag{6'}$$

$$(1 + g_g)^{\frac{1}{365}} = (1 + r_g)^{\frac{1}{365}} + \frac{f}{365} \tag{6"}$$

$$1 + g_g = \left[(1 + r_g)^{\frac{1}{365}} + \frac{f}{365} \right]^{365} \tag{6'''}$$

$$g_g = \left[(1 + r_g)^{\frac{1}{365}} + \frac{f}{365} \right]^{365} - 1 \tag{6''''}$$

that in percentage terms is obviously equal to:

$$g_g = \left\{ \left[(1 + r_g)^{\frac{1}{365}} + \frac{f}{365} \right]^{365} - 1 \right\} \cdot 100\% \tag{6'''''}$$

The figures of gross rate of return for any investment fund for the chosen values of the net rate of return and the chosen levels of the net management fee are

presented in Table 1. The difference between the value of the gross rate of return for the given net rate of return and the given net management fee (being the given entry in the Table 1) on one hand and the net rate of return on the other (given in the first column of the Table 1) is the gross management fee we have looked for. Having this figure one can easily compute the difference between the real (gross) management fee and the respective net one (given in the first raw of the Table 1) both in absolute terms as well as in percentage ones (see columns 3 through 12 of table 3).

1.2. Management fee in the case of a compound interest rate

The gross management fee computed according to the compound interest rate can be found similarly to the previous case. However, in the case of the compound interest rate the formulas (4.1) through (4.t') must be changed to the following ones:

$$
\begin{aligned}
NAV_2 &= NAV_1 \cdot (1 + g_1)^{\frac{1}{365}} - NAV_1 \cdot \left[(1+f)^{\frac{1}{365}} - 1\right] = \\
&= NAV_1 \cdot \left\{(1 + g_1)^{\frac{1}{365}} - \left[(1+f)^{\frac{1}{365}} - 1\right]\right\}
\end{aligned}
\tag{7.1}
$$

$$
NAV_3 = NAV_2 \cdot \left\{(1 + g_2)^{\frac{1}{365}} - \left[(1+f)^{\frac{1}{365}} - 1\right]\right\}
\tag{7.2}
$$

$$
\cdot
$$
$$
\cdot
$$

$$
NAV_{t'+1} = NAV_{t'} \cdot \left\{(1 + g_{t'})^{\frac{1}{365}} - \left[(1+f)^{\frac{1}{365}} - 1\right]\right\}
\tag{7.t'}
$$

From (7.1) through (7.t') one can easily compute the effectiveness of management of the given investment fund over a given period of time similarly to formulas (2) and (5):

$$
\begin{aligned}
\frac{NAV_{t'+1}}{NAV_1} &= \left\{(1 + g_1)^{\frac{1}{365}} - \left[(1+f)^{\frac{1}{365}} - 1\right]\right\} \cdot \left\{(1 + g_2)^{\frac{1}{365}} - \left[(1+f)^{\frac{1}{365}} - 1\right]\right\} \cdot \ldots \cdot \\
&\qquad \ldots \cdot \left\{(1 + g_{t'})^{\frac{1}{365}} - \left[(1+f)^{\frac{1}{365}} - 1\right]\right\}
\end{aligned}
\tag{8}
$$

The same value can be obviously calculated directly as:

$$
\frac{NAV_{t'+1}}{NAV_1} = \left\{(1 + g_{1/t'})^{\frac{1}{365}} - \left[(1+f)^{\frac{1}{365}} - 1\right]\right\}^{t'}
\tag{8'}
$$

that is equivalent to:

$$\frac{NAV_{t'+1}}{NAV_1} = \left\{(1 + g_{g(t')})^{\frac{1}{365}} - \left[(1+f)^{\frac{1}{365}} - 1\right]\right\}^{t'}$$
(8")

Therefore, after one year we have:

$$\frac{NAV_{366}}{NAV_1} = \left\{(1 + g_g)^{\frac{1}{365}} - \left[(1+f)^{\frac{1}{365}} - 1\right]\right\}^{365}$$
(8''')

that is obviously equal to $(1 + r_g)$ given by formula (2'''). Therefore:

$$\left\{(1 + g_g)^{\frac{1}{365}} - \left[(1+f)^{\frac{1}{365}} - 1\right]\right\}^{365} = 1 + r_g$$
(9)

$$(1 + g_g)^{\frac{1}{365}} - \left[(1+f)^{\frac{1}{365}} - 1\right] = (1 + r_g)^{\frac{1}{365}}$$
(9')

$$(1 + g_g)^{\frac{1}{365}} = (1 + r_g)^{\frac{1}{365}} + (1+f)^{\frac{1}{365}} - 1$$
(9")

$$1 + g_g = \left[(1 + r_g)^{\frac{1}{365}} + (1+f)^{\frac{1}{365}} - 1\right]^{365}$$
(9''')

$$g_g = \left[(1 + r_g)^{\frac{1}{365}} + (1+f)^{\frac{1}{365}} - 1\right]^{365} - 1$$
(9'''')

that in percentage terms is obviously equal to:

$$g_g = \left\{\left[(1 + r_g)^{\frac{1}{365}} + (1+f)^{\frac{1}{365}} - 1\right]^{365} - 1\right\} \cdot 100\%$$
(9''''')

The figures of gross rates of return for any investment fund for the same values of the net rate of return and the levels of the net management fee as in the case of simple interest rates are presented in Table 2. The difference in Table 2 between the value of the gross rate of return for the given net rate of return and the given net management fee (being the given entry in the Table 2) on one hand and the net rate of return on the other (given in the first column of the Table 1) is naturally the gross management fee in case of the management fee charged on the basis of the compound interest. Obviously, the respective figures in this case is somewhat smaller then in the case of simple interest rate basis presented

in Table 1. Unfortunately for the investors, the managing firms compute their management fees on simple interest base.

Then one can easily compute the difference between the real (gross) management fee in this case and the corresponding net one (given in the first raw of the Table 1) both in absolute terms as well as in percentage ones(see column 2 of table 3).

Table. 1. Gross rates of return of investments funds for net rates of return from 10,0% to 20,0% and (net) management fees from 0,5% to 5,0% charged on the simple interest rate basis

r\f	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0
10,0	10,55	11,11	11,66	12,22	12,78	13,35	13,92	14,49	15,06	15,64
10,5	11,05	11,61	12,17	12,73	13,30	13,86	14,43	15,01	15,58	16,16
11,0	11,56	12,12	12,68	13,24	13,81	14,38	14,95	15,53	16,11	16,69
11,5	12,06	12,62	13,18	13,75	14,32	14,89	15,47	16,05	16,63	17,21
12,0	12,56	13,13	13,69	14,26	14,83	15,41	15,99	16,57	17,15	17,74
12,5	13,06	13,63	14,20	14,77	15,35	15,92	16,51	17,09	17,68	18,27
13,0	13,57	14,14	14,71	15,28	15,86	16,44	17,02	17,61	18,20	18,79
13,5	14,07	14,64	15,21	15,79	16,37	16,96	17,54	18,13	18,72	19,32
14,0	14,57	15,15	15,72	16,30	16,88	17,47	18,06	18,65	19,24	19,84
14,5	15,07	15,65	16,23	16,81	17,40	17,99	18,58	19,17	19,77	20,37
15,0	15,58	16,16	16,74	17,32	17,91	18,50	19,09	19,69	20,29	20,89
15,5	16,08	16,66	17,24	17,83	18,42	19,02	19,61	20,21	20,81	21,42
16,0	16,58	17,17	17,75	18,34	18,94	19,53	20,13	20,73	21,34	21,94
16,5	17,08	17,67	18,26	18,85	19,45	20,05	20,65	21,25	21,86	22,47
17,0	17,59	18,18	18,77	19,36	19,96	20,56	21,17	21,77	22,38	23,00
17,5	18,09	18,68	19,27	19,87	20,47	21,08	21,68	22,29	22,91	23,52
18,0	18,59	19,19	19,78	20,38	20,99	21,59	22,20	22,81	23,43	24,05
18,5	19,09	19,69	20,29	20,89	21,50	22,11	22,72	23,33	23,95	24,57
19,0	19,60	20,20	20,80	21,40	22,01	22,62	23,24	23,85	24,47	25,10
19,5	20,10	20,70	21,31	21,91	22,52	23,14	23,75	24,37	25,00	25,62
20,0	20,60	21,21	21,81	22,42	23,04	23,65	24,27	24,89	25,52	26,15

Source: Own computations according to formula (6'''').

Table. 2. Gross rates of return of investments funds for net rates of return from 10,0% to 20,0% and (net) management fees from 0,5% to 5,0% charged on the compound interest rate basis

f\r	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0
10,0	10,55	11,10	11,65	12,20	12,75	13,30	13,85	14,40	14,95	15,50
10,5	11,05	11,60	12,16	12,71	13,26	13,81	14,37	14,92	15,47	16,02
11,0	11,55	12,11	12,66	13,22	13,77	14,33	14,88	15,44	15,99	16,55
11,5	12,06	12,61	13,17	13,73	14,29	14,84	15,40	15,96	16,52	17,07
12,0	12,56	13,12	13,68	14,24	14,80	15,36	15,92	16,48	17,04	17,60
12,5	13,06	13,62	14,19	14,75	15,31	15,87	16,44	17,00	17,56	18,12
13,0	13,56	14,13	14,69	15,26	15,82	16,39	16,95	17,52	18,08	18,65
13,5	14,07	14,63	15,20	15,77	16,34	16,90	17,47	18,04	18,61	19,17
14,0	14,57	15,14	15,71	16,28	16,85	17,42	17,99	18,56	19,13	19,70
14,5	15,07	15,64	16,22	16,79	17,36	17,93	18,51	19,08	19,65	20,22
15,0	15,57	16,15	16,72	17,30	17,87	18,45	19,02	19,60	20,17	20,75
15,5	16,08	16,65	17,23	17,81	18,39	18,96	19,54	20,12	20,70	21,27
16,0	16,58	17,16	17,74	18,32	18,90	19,48	20,06	20,64	21,22	21,80
16,5	17,08	17,66	18,25	18,83	19,41	19,99	20,58	21,16	21,74	22,32
17,0	17,58	18,17	18,75	19,34	19,92	20,51	21,09	21,68	22,26	22,85
17,5	18,09	18,67	19,26	19,85	20,44	21,02	21,61	22,20	22,79	23,37
18,0	18,59	19,18	19,77	20,36	20,95	21,54	22,13	22,72	23,31	23,90
18,5	19,09	19,68	20,28	20,87	21,46	22,05	22,65	23,24	23,83	24,42
19,0	19,59	20,19	20,78	21,38	21,97	22,57	23,16	23,76	24,35	24,95
19,5	20,10	20,69	21,29	21,89	22,49	23,08	23,68	24,28	24,87	25,47
20,0	20,60	21,20	21,80	22,40	23,00	23,60	24,20	24,80	25,40	26,00

Source: Own computations according to formula (9''''').

Table. 3. **Difference between gross management fees and the net ones (in % of the later) for net rates of return from 10,0% to 20,0% and (net) management fees charged on the compound interest rate basis (column 2) and (net) management fees from 0,5% to 5,0% charged on the simple interest rate basis (remaining columns)**

f \ r	com- pound	Interest rates									
		simple									
		0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0
10,0	9,97	10,25	10,52	10,80	11,07	11,35	11,63	11,91	12,19	12,48	12,76
10,5	10,47	10,75	11,02	11,30	11,58	11,86	12,14	12,42	12,70	12,99	13,27
11,0	10,97	11,25	11,52	11,80	12,08	12,36	12,64	12,93	13,21	13,50	13,78
11,5	11,47	11,75	12,02	12,30	12,59	12,87	13,15	13,43	13,72	14,00	14,29
12,0	11,97	12,24	12,53	12,81	13,09	13,37	13,66	13,94	14,23	14,51	14,80
12,5	12,46	12,74	13,03	13,31	13,59	13,88	14,16	14,45	14,74	15,02	15,31
13,0	12,96	13,24	13,53	13,81	14,10	14,38	14,67	14,96	15,24	15,53	15,82
13,5	13,46	13,74	14,03	14,31	14,60	14,89	15,17	15,46	15,75	16,04	16,34
14,0	13,96	14,24	14,53	14,82	15,10	15,39	15,68	15,97	16,26	16,55	16,85
14,5	14,46	14,74	15,03	15,32	15,61	15,90	16,19	16,48	16,77	17,06	17,36
15,0	14,96	15,24	15,53	15,82	16,11	16,40	16,69	16,98	17,28	17,57	17,87
15,5	15,45	15,74	16,03	16,32	16,61	16,91	17,20	17,49	17,79	18,08	18,38
16,0	15,95	16,24	16,53	16,82	17,12	17,41	17,70	18,00	18,30	18,59	18,89
16,5	16,45	16,74	17,03	17,33	17,62	17,91	18,21	18,51	18,80	19,10	19,40
17,0	16,95	17,24	17,53	17,83	18,12	18,42	18,72	19,01	19,31	19,61	19,91
17,5	17,45	17,74	18,04	18,33	18,63	18,92	19,22	19,52	19,82	20,12	20,42
18,0	17,95	18,24	18,54	18,83	19,13	19,43	19,73	20,03	20,33	20,63	20,94
18,5	18,44	18,74	19,04	19,33	19,63	19,93	20,23	20,54	20,84	21,14	21,45
19,0	18,94	19,24	19,54	19,84	20,14	20,44	20,74	21,04	21,35	21,65	21,96
19,5	19,44	19,74	20,04	20,34	20,64	20,94	21,25	21,55	21,85	22,16	22,47
20,0	19,94	20,24	20,54	20,84	21,14	21,45	21,75	22,06	22,36	22,67	22,98

Source: Own computations on the basis of figures given in table 1 and table 2.

2. Why the investment funds' management fees on the Polish market and in Western European economies are different and how long the differences will exist?

In the screenplay of the movie „Kariera Nikodema Dyzmy" based on the well known book written in the pre-World War II period by the Polish author Tadeusz Dołęga-Mostowicz the title hero used to ask during shopping: „How much is it and why is it that much expensive?" It was funny because the second part of the question had been articulated before there was any chance for any answer to its first one. The same question may be put with respect to the investment funds'

management fees charged by the managing firms operating on the Polish market. Unfortunately, there is nothing funny in it for the Polish investors. Namely, the respective net fees are at the level of 3,7% p.a. in the case of equity (Polish: akcyjne) funds and 3,6% in the case of balanced (Polish: zrównoważone) funds and they are about 2,5 times higher than, for instance, in Luxembourg where they are equal accordingly to 1,6% p.a. and 1,5% p.a.

Therefore the Dyzma's question may be reformulated to read as follows: why investment funds' management fees charged by the managing firms operating on the Polish market are so much higher than in Western European economies? There is a set of the straightforward answers to this question, namely:

1) unit financial results of the managing firms operating on the Polish market are far better than those of their western European counterparts so they must have extra premiums. One would be really happy if it is true. Unfortunately, there is no statistical evidence confirming the extraordinary good results of the managing firms operating on the Polish market;

2) unit operating costs of the managing firms operating on the Polish market are far higher than those of their western European counterparts. Operating costs consist of labour costs, cost of materials and services and cost of amortization of the fixed assets used in providing services by the managing firms. For the time being all of them seem to be smaller in Poland than in any western European country;

3) total management fee earned by individual managing firm operating on the Polish market must be much higher than in any western European country because the total net value of assets under its management in Poland is much lower than in the other countries and, otherwise, it would not be sufficient to cover its total operating costs. The last part of this statement was probably sometimes true in the nineties of the last century and has also been valid in case of managing firms that just had entered the market later on[2];

4) the extraordinary high profits are earned by the managing firm operating on the Polish market or, in other words, they try to earn as much as they can to

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[2] Pierwszy Polski Fundusz Powierniczy „Pioneer" that started in 1992, gathered about 2,0 mld PLN in 1994 and had under management 1,4 mld PLN at the end of 1996 when it constituted 94,5% of the total NAV in Poland. At that moment there were two other managing firms that operated practically only in 1996. On the other hand in 2009 there was about 40 managing firms and they had about 100 mld PLN under management. (For details see, for instance: Kuciński J.: Rynek polskich funduszy inwestycyjnych, Dom Wydawniczy „Elipsa", Warszawa 2011, s. 50 – 51, 123 i 130). One can assume that Pioneer earned management fees altogether equal to about 100 mln PLN (2/3 of this amount during the hossa at the end of 1993 and the other part in 1996) while the other two firms earned management fees altogether equal to about 4 mln PLN. Also nowadays there is not much room for the beginners as the average value of assets under management of one company (2,5 mld PLN) is not very much different from the respective figures in the nineties of the last century.

catch up with the relative earnings of their western European counterparts. Unfortunately, there is no doubt with respect to this statement. Obviously, one can agree that there is no special (even unwritten) agreement between the managing firms with respect to this issue. Nevertheless, one can be afraid that the managing firms operating on the Polish market will keep their management fees at the current levels as long as possible irrespectively of the total amount of value of assets gathered by them and there is no chance for any competition between them with respect to the management fees.

Therefore there are two questions connected with the results of the above given short analysis:

1) when the management fees on the Polish market will be reduced to the level of western European standards?
2) what are the preconditions for the reduction of the management fees on the Polish market?

The answers to the above given questions lay on the other side of the market, namely in the hands of customers. Speaking precisely, the matter is related to the level of consciousness of the Polish investors. As long as they are not prepared to transfer their funds abroad and to invest through the brokerage firms domiciled in, say, Luxembourg, the investment funds' managing firms operating on the Polish market may sleep peacefully. On the other hand, development of the European integration and growing knowledge of the possibilities of financial investments abroad as well as growing knowledge of methods of such investments will cause, sooner or later, that Poles will be investing through managing firms domiciled outside of Poland that will charge them less. As soon as this is true, the managing companies operating on the Polish market will have to reduce their managing fees' levels accordingly to meet the Western European competition or, in other words, to adjust themselves to the Western European standards.

Unfortunately, this lesson for the managing firms will cost Poles much. Firstly, probably it will last long before it happens. In other words, the management fees on the Polish market will remain high for many years because the changes in consciousness do not take place rapidly. Secondly, first experiences need not to be promising and sooner and or later they will hamper the discussed process of transferring to the foreign management firms. The most important is, however, that the respective transfers, as soon as they start to be popular and massive, will reduce substantially the amount of funds available for the Polish economy.

All the above statements lead to the conclusion that the Polish Government should immediately influence on the investment funds' managing firms to reduce their management fees to the western European standards as soon as possible. If the respective measures are efficient the positive results for the individuals as well as the whole Polish economy will be evident already in the nearest future and especially in the more distant one.

Bruno Bracalente*, Cristiano Perugini*

FACTOR DECOMPOSITION OF CROSS-COUNTRY INCOME INEQUALITY WITH INTERACTION EFFECTS

Abstract

In this paper we describe a decomposition of the Theil measures of per capita income inequality which accounts for interaction effects between its multiplicative factors. Our theoretical evidence, supported by an empirical application referring to EU-27 countries in the year 2010, suggest that neglecting these effects may strongly bias the relative importance of some factors, with consequent misleading policy implications.

Introduction

Per capita income may be expressed as the product of many factors. The basic decomposition is into the two classical determinants of the *wealth of nations*: the share of population employed, and labour productivity. In turn, each of these can be multiplicatively decomposed into more specific factors.

Irrespective of their number, an interesting question concerns how to measure their contribution to inequality in cross-country (or region) per capita income. For this aim, Duro and Esteban (1998) proposed an additive decomposition based on the *second* Theil inequality measure. This approach was criticised by Cheng and Li (2006) who developed a method, noted by the same Duro and Esteban, in which a residual term emerges and is interpreted as an interaction effect between the components.

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* Department of Economics, Finance and Statistics, University of Perugia, Via Pascoli, 06123 Perugia, Italy.

In this paper, moving from Duro and Padilla (2006), we describe a possible decomposition of the *first* and *second* Theil inequality measures (Theil, 1967; Bourguignon, 1979) with interaction components and explain the reasons why this method should be considered preferable to the above-mentioned ones. An application referring to EU-27 countries for the year 2010 is provided to corroborate the theoretical evidence.

1. Decomposition of per capita GDP inequality with interactions

Let X_i, E_i, P_i $(i=1, \ldots, N)$ be country i GDP, employment and population, respectively, and X, E, P the corresponding total values (i.e., $X = \sum_i X_i$, etc.). Let x_i be country per capita GDP, with weighted mean $\mu(x) = X/P$, and p_i the country share of population on total ($p_i = P_i/P$).

Both x_i and $\mu(x)$ may be expressed as the product of two factors:

$$x_i = \frac{X_i}{P_i} = \frac{X_i}{E_i} \cdot \frac{E_i}{P_i} = y_i \cdot e_i$$

$$\mu(x) = \frac{X}{P} = \frac{X}{E} \cdot \frac{E}{P} = \mu(y) \cdot \mu(e)$$

where y_i and e_i are country labour productivity and employment rate on total population, respectively, and $\mu(y)$ and $\mu(e)$ their weighted means.

The corresponding population-weighted Theil inequality index (so-called second measure) may be decomposed into two additive components, as follows:

$$T(x, p) = \sum_i p_i \cdot \ln \frac{\mu(x)}{x_i} = \sum_i p_i \cdot \ln \frac{\mu(y) \cdot \mu(e)}{y_i \cdot e_i} =$$

$$= \sum_i p_i \cdot \ln \frac{\mu(y)}{y_i} + \sum_i p_i \cdot \ln \frac{\mu(e)}{e_i} = T(y, p) + T(e, p)$$

(1)

This decomposition is provided, via a more complex procedure, by Duro and Esteban (1998) who show that each additive term represents the contribution to GDP per capita inequality of each initial multiplicative factor.

As noted by Cheng and Li (2006), this approach does not consider explicitly the interaction effect deriving from the correlation between the components of per capita GDP. In order to account for this effect, Cheng and Li (2006) pro-

posed another method (reported by Duro and Esteban in a footnote) which they developed using an unweighted version of the Theil inequality index:

$$T(x) = \frac{1}{N} \cdot \sum_i \ln \frac{\mu'(x)}{x_i} = \frac{1}{N} \cdot \sum_i \ln \frac{\mu'(y) \cdot \mu'(e)}{y_i \cdot e_i} \cdot \frac{\mu'(x)}{\mu'(y) \cdot \mu'(e)} =$$

$$= T(y) + T(e) + \ln \frac{\mu'(x)}{\mu'(y) \cdot \mu'(e)} \tag{2}$$

where $\mu'(x)$, $\mu'(y)$ and $\mu'(e)$ are the un-weighted means of x_i, y_i and e_i, respectively.

The residual $\ln \dfrac{\mu'(x)}{\mu'(y) \cdot \mu'(e)}$ is interpreted by Cheng and Li as an interaction effect which reflects the correlation between y and e.

However, it should be noted that this residual term only survives if the un-weighted Theil measure and means are used. This choice implies assigning to each country (or region) per capita income, irrespective of their economic or demographic size, equal importance in determining inequality. When weighted means are used, since $\mu(x) = \mu(y) \cdot \mu(e)$, the residual term of Cheng and Li becomes zero.

Following Duro and Padilla (2006), to properly consider the interaction effect between components, we must go back to decomposition (1), where the second component, $T(e, p)$, is a proper Theil index (second measure) and can correctly be interpreted as the share of inter-country per capita income inequality attributable to the employment factor. However, the first component, $T(y, p)$, is not a proper Theil index, since the weighting factor here should be the country employment share ($h_i = E_i/E$), rather than the population share (p_i). Thus, the proper Theil index for the first component is:

$$T(y, h) = \sum_i h_i \cdot \ln \frac{\mu(y)}{y_i}$$

Consequently, decomposition (1) becomes:

$$T(x, p) = \sum_i h_i \cdot \ln \frac{\mu(y)}{y_i} + \sum_i p_i \cdot \ln \frac{\mu(e)}{e_i} + \sum_i (p_i - h_i) \cdot \ln \frac{\mu(y)}{y_i} \tag{3}$$

The third addend (residual term) is easily rearranged as follows:

$$\sum_i (p_i - h_i) \cdot \ln \frac{\mu(y)}{y_i} = \sum_i (h_i - p_i) \cdot \ln \frac{y_i}{\mu(y)} =$$

$$= \sum_i \frac{P_i}{E} \cdot \left(\frac{E_i}{P_i} - \frac{E}{P} \right) \cdot \left[\ln y_i - \ln \mu_g(y) + \ln \frac{\mu_g(y)}{\mu(y)} \right] = \qquad (4)$$

$$= \frac{1}{\mu(e)} \cdot \sum_i p_i \cdot [e_i - \mu(e)] \cdot [\ln y_i - \ln \mu_g(y)]$$

where μ_g is the geometric mean of the variable.

Net to the scalar $1/\mu(e)$, this residual term is the co-variance, weighted by p_i, between e_i and $\ln y_i$, and may this be interpreted as an interaction effect, depending on the correlations between these two variables.

Denoting this interaction effect by $\Delta_{y,e}$, equation (3) becomes:

$$T(x,p) = T(y,h) + T(e,p) + \Delta_{y,e} \qquad (5)$$

Since $T(y, p) = T(y, h) + \Delta_{y,e}$, in equation (1) the interaction factor is inside $T(y, p)$, which therefore cannot be interpreted as the share of inequality attributable only to the productivity factor of per capita GDP. This clarifies a point considered puzzling by Cheng and Li, i.e, why one factor of (1) could contribute negatively to inequality. The two factors may indeed be of opposite sign when the contribution of one of them is partially (or totally) offset by the other one. For the sake of clarity, let us suppose that the countries examined have the same per capita GDP, so that the Theil index is zero, but both labour productivities and employment rates show some variability. Using decomposition (1), we would necessarily obtain components of opposite signs (and strength). However, the true reason why a component may be negative lies in the fact that it includes the interaction effect, which may be negative (if the correlation between the interacting variables is negative) and strong enough to affect the sign of the improperly measured component.

Using the same approach, we can of course decompose the income-weighted Theil index (first measure) as follows:

$$T(x,q) = \sum_i q_i \cdot \ln \frac{x_i}{\mu(x)} = \sum_i q_i \cdot \ln \frac{y_i}{\mu(y)} + \sum_i q_i \cdot \ln \frac{e_i}{\mu(e)} = \qquad (6)$$

$$= T(y,q) + T(e,q)$$

Now the second component, $T(e, q)$, is not a proper Theil index, in which the weighting factor should be h_i:

$$T(e, h) = \sum_i h_i \cdot \ln \frac{e_i}{\mu(e)}$$

In this case decomposition (6) becomes:

$$T(x, q) = \sum_i q_i \cdot \ln \frac{y_i}{\mu(y)} + \sum_i h_i \cdot \ln \frac{e_i}{\mu(e)} + \sum_i (q_i - h_i) \cdot \ln \frac{e_i}{\mu(e)} \tag{7}$$

The residual term is now:

$$\sum_i (q_i - h_i) \cdot \ln \frac{e_i}{\mu(e)} == \frac{1}{\mu(y)} \cdot \sum_i h_i \cdot [y_i - \mu(y)] \cdot \left[\ln e_i - \mu_g(e) \right] \tag{8}$$

Now the residual term measures the interaction effect deriving from the correlation between y_i and $\ln e_i$. Denoting this interaction effect as $\Delta'_{y, e}$, equation (7) becomes:

$$T(x, q) = T(y, q) + T(e, h) + \Delta'_{y, e} \tag{9}$$

Again, since $T(e, q) = T(e, h) + \Delta'_{y, e}$, in equation (6) the interaction component is inside $T(e, q)$, which therefore cannot be interpreted as the share of inequality attributable only to employment differentials.

The proposed approach can obviously be used for more complex decompositions of per capita GDP, for example into four factors:

$$x_i = \frac{X_i}{P_i} = \frac{X_i}{L_i} \cdot \frac{L_i}{E_i} \cdot \frac{E_i}{Pl_i} \cdot \frac{Pl_i}{P_i} = y'_i \cdot c_i \cdot e'_i \cdot d_i$$

where the new notations L_i and Pl_i are country internal employment and working-age population, respectively. The corresponding weighted mean $\mu(x)$ is then:

$$\mu = \frac{X}{P} = \frac{X}{L} \cdot \frac{L}{E} \cdot \frac{E}{Pl} \cdot \frac{Pl}{P} = \mu(y') \cdot \mu(c) \cdot \mu(e') \cdot \mu(d)$$

where $L = \sum_i L_i$, and $Pl = \sum_i Pl_i$.

This longer decomposition allows us: (i) to measure productivity and employment rate more correctly by means of two different measures of employ-

ment[1]; (ii) to measure the employment rate on the working age population; and (iii) to take into account the age structure of the population.

Going back to equation (5), the decomposition of $T(x, p)$ into four components is easily obtained by applying the decomposition in two components to both $T(y, h)$ and $T(e, p)$:

$$T(y, h) = \sum_i h_i \cdot \ln \frac{\mu(y)}{y_i} = \sum_i l_i \cdot \ln \frac{\mu(y')}{y'_i} + \sum_i h_i \cdot \ln \frac{\mu(c)}{c_i} +$$

$$+ \sum_i (h_i - l_i) \cdot \ln \frac{\mu(y')}{y'_i} = T(y', l) + T(c, h) + \Delta_{y',c} \tag{10}$$

where $l_i = L_i/L$ and:

$$T(e, p) = \sum_i p_i \cdot \ln \frac{\mu(e)}{e_i} = \sum_i w_i \cdot \ln \frac{\mu(e')}{e'_i} + \sum_i p_i \cdot \ln \frac{\mu(d)}{d_i} +$$

$$+ \sum_i (p_i - w_i) \cdot \ln \frac{\mu(e')}{e'_i} = T(e', w) + T(d, p) + \Delta_{e',d} \tag{11}$$

where $w_i = Pl_i/Pl$.

Lastly, the decomposition of $T(x, p)$ (second measure) into four components is:

$$T(x, p) = T(y', l) + T(c, h) + T(e', w) + T(d, p) + \Delta_{y,e} + \Delta_{y',c} + \Delta_{e',d} \tag{12}$$

Correspondingly, moving from equation (9) and decomposing the two components $T(y, q)$, $T(e, q)$, we obtain the following Theil inequality (first measure) index, broken down into four components:

$$T(x, q) = T(y', q) + T(c, l) + T(e', h) + T(d, w) + \Delta'_{y,e} + \Delta'_{y',c} + \Delta'_{e',d} \tag{13}$$

2. Decomposition of per capita GDP inequality in the EU-27 countries

We employ the approach to decompose into four components cross-country per capita GDP (market prices, millions PPPs) of the 27 EU members. Data are

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[1] *Internal* employment (L_i) is used for productivity, since GDP is measured on „internal bases"; *residential* employment (E_i) is used for the employment rate, since working age population is, of course, resident population. The two measures may differ due to commuting flows, presence of foreign non-resident workers, and statistical errors.

from Eurostat and refer to 2010, the most recent year available at the time of writing. We aim here at providing one example of the differences obtained by: (i) using or not using the interaction terms; (ii) using the two Theil measures, i.e, weighting with population versus income shares.

Table 1 lists results for the first Theil measure, with and without interaction terms. Apart from the productivity component, which obviously remains unchanged, the data reveal that a great deal of the impact assigned to the L/E factor (7.8%) is due to the interaction effect between this component and productivity (5.5%); similarly, the true role of the employment rate (15.6%) is less than half that emerging without interaction terms (31.7%). Interestingly, the properly measured demographic component contributes around 1.4% to total inequality, whereas in the absence of interactions it seemed to act as a factor strongly reducing inequality (-18.1%). However, this negative sign is the effect of the negative correlation between ln e' and d, as highlighted by the sign of their interaction term.

Table. 1. Decomposition of per capita GDP in 2010 without and with interactions (Theil 1, income weighted, EU-27)

Components		%	Components		%
$T(y',q)$	0.02359	78.551	$T(y',l)$	0.02359	78.551
$T(c,q)$	0.00233	7.765	$T(c,h)$	0.00069	2.298
			$\Delta'_{y',c}$	0.00164	5.467
$T(e',q)$	0.00954	31.750	$T(e',w)$	0.00468	15.596
$T(d,q)$	-0.00543	-18.066	$T(d,p)$	0.00043	1.445
			$\Delta'_{y,e}$	-0.00003	-0.094
			$\Delta'_{e',d}$	-0.00098	-3.263
$T(x,q)$	*0.03004*	*100.000*	*$T(x,p)$*	*0.03004*	*100.000*

Similar comments may be provided with reference to the outcomes obtained using the second Theil measure (Table 2). The comparison between the population-weighted and properly weighted decompositions reveals, in the first case, an overestimation of the role of productivity differences (89% instead of 80%), biased by the interaction factors between y and e and y' and c. Conversely, the importance of employment rates is underestimated if the interaction between e' and d (negative) is not considered.

The comparison between the left panels of the two tables shows that, if the interaction terms are not taken into account, the decomposition may lead to very different outcomes in identifying the components of inequality, depending on the choice of the first or second Theil measure. However, these huge differences tend to shrink greatly if the interaction terms are accounted for (right panels).

Table. 2. Decomposition of per capita GDP in 2010 without and with interactions (Theil 2, population weighted, EU-27)

Components		%	Components		%
$T(y',p)$	0.03053	89.177	$T(y',l)$	0.02738	79.974
$T(c,p)$	-0.00043	-1.262	$T(c,h)$	0.00067	1.956
			$\Delta_{y,e}$	0.00037	1.066
			$\Delta_{y',c}$	0.00168	4.918
$T(e',p)$	0.00371	10.830	$T(e',w)$	0.00466	13.609
			$\Delta_{e',d}$	-0.00095	-2.778
$T(d,p)$	0.00043	1.255	$T(d,p)$	0.00043	1.255
$T(x,p)$	0.03423	100.000	$T(x,p)$	0.03423	100.000

Conclusions

This paper describes a decomposition of the Theil (first and second) measures of per capita income inequality which allows distinguishing the role of the multiplicative components of per capita income from their interaction effects. We show that correctly isolating these effects allows addressing otherwise unresolved points, e.g., the negative sign of one or more components when interactions are not considered. Our empirical exercise for the 27 EU countries (2010) shows that the explicit consideration of interaction terms drastically reduces the remarkable differences obtained using the first or second Theil measure. Conversely, if not explicitly considered, interaction effects may strongly bias the relative importance of the multiplicative factors of per capita GDP, with consequent misleading policy implications.

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Elżbieta J. Siek

PROFESSOR JÓZEF MISALA (1950-2011)

„*Does not die a man who remains in our hearts and memories*"

Professor Józef Misala was born on the May 15ᵗʰ 1950 in Jankowice near Rybnik in Upper Silesia. He graduated with honours from the Powstańców Śląskich High School in Rybnik. He commenced His studies at the Faculty of International Trade of the Main School of Planning and Statistics (SGPiS, now – Warsaw School of Economics – SGH). In May 1973 He graduated from the Main School of Planning and Statistics with a dissertation entitled *USA Agricultural Exports to the EEC Member Countries*. As one of the best graduates He applied for the job in the Ministry of Foreign Affairs – which was His dream. However, due to political issues (he had an aunt abroad) He did not get the job. Instead He was offered the position of the assistant in the Institute of International Economics. Accepting this position He commenced his scientific carrier. In May 1978 He defended his doctoral thesis *The Possibilities of Specialization in Production of Foodstuffs between CMEA and EEC Member Countries* prepared under the „vigilant and rigorous eye" of Professor Paweł Bożyk.

In 1983 he went to Germany, as a beneficent of the Fellowship of the Alexander von Humboldt Foundation. In the Kiel Institute of World Economics under the supervision of Professor Herbert Giersch for 18 months he conducted research on the development of the East-West trade. Due to that research the habilitation thesis *Development of East-West Trade In the Light of International Trade Theory* was prepared. He obtained the degree in June 1989. For the second time He participated the Kiel IWE scholarship programme from May till October 1990. There – during the realisation of the research project *Polish German Economic Cooperation in the XXᵗʰ Century* He became friends with Professor Horst Siebert, Professor Claus-Werner Schatz, Professor Henning Klodt and Klaus Schrader, Ph.D. He came back to Poland for a few months just to go back to Germany and work for the Institute in 1991-92. He had good memories from his work in Kiel. An atmosphere there was favourable to scientific research. One could sense a hint of regret when He was talking about coming back to Poland

for personal reasons. Later on, He frequently visited the Institute in Kiel. He always came back with a suitcase of different scientific materials and head full of ideas and thoughts.

In the nineties apart from His scientific and didactic work, He also worked for the governmental institutions. From September 1993 to May 1995 he worked as the Deputy Director in the Institute for Foreign Trade and from August 1995 till the end of the 1996 – as the Deputy Director of the Economic Strategy Department in the Central Planning Centre. The Central Planning Centre was closed down by the administrative decision (Act of the August 8th 1996) and the Governmental Centre for Strategic Studies was created on the January 1st 1997. In 1997-1998 He was initially the Director of the Economic Strategy Department and subsequently the Director of the Department of Strategy and Regional Economic Integration. As He used to say, the work in those institutions was very hard. Long meetings and discussions, conferences that lasted till the late night hours and irregular lifestyle had an impact on His health. During the work for the government He briefly considered to get involved in politics. His friend, a well-known politician told him that day: „Józef, you are a scientist. you are not cut out to be a politician". He focused on science and on June 18th 1998, at the age of 48, he received the title of the Professor Ordinarius from the President of Poland, Aleksander Kwaśniewski.

Professor Józef Misala was a student and, subsequently, a co-worker of, amongst others, professor Zbigniew Kamecki, professor Józef Sołdaczuk, professor Paweł Sulmicki and professor Paweł Bożyk, who are considered to be experts in the field of international economic relations. He had been learning from them and then He transmitted the knowledge to other people – not only to the students of the Warsaw University of Economics but also to the students of other Polish and foreign universities. On the October 1st 1999 He accepted, how he called it himself „an interesting developmental challenge" – i.e. creating the department of the International Economic Relations and Regional Integration (MSGiIR) at the Faculty of Economics of the Technical University of Radom (Politechnika Radomska im. Kazimierza Pułaskiego). He managed to succeed. From that moment he conducted his scientific and didactic activities both at the Warsaw School of Economics and at the Technical University of Radom (as a head of the department of the International Economic Relations and Regional Integration). He gave guest lectures in many Polish universities. Within the framework of the Erasmus programme he was a guest professor in Greece, Spain, Germany, Portugal and the United Kingdom.

Professor Józef Misala was interested in, widely understood, international economic relations, with an emphasis of the theory and practice of the international trade development. His work on the development of international economic exchange between states and groups of states had begun when he was still

a student. He devoted numerous articles to this subject, what resulted in unquestioned appreciation of his work by foreign and Polish scientists. In the nineties he focused more and more on the problem of economic integration, especially integration within the European Union and Poland's future as a member of the EU (however, not only these issues). He suggested methods and directions of solving these problems. During the last years of His life he conducted intense research on the international states' and regions' competition. However, His greatest dream was to write a book about his beloved Silesia. He partly managed to make it come true. In 2011 the first version of the book *Silesia in the Europe's and world's economy. The essay on the Silesian history and perspectives* (*Śląsk w gospodarce Europy i świata. Zarys historii i perspektyw*) that was dedicated to the economic development of the region. Unfortunately, Professor Misala did not manage to complete the book, however, due to the cooperation of few people realisation of His dream became possible and the book is about to be published.

Professor Józef Misala was a very creative scientist, known and appreciated both in Poland and in other states. He was the author of over 30 monographs and books, including academic textbooks, over 200 scientific papers published in monographs and Polish and foreign journals, over 30 dissertations and dozens of other studies and expertises prepared for the Polish and foreign institutions.

He was very thorough in his didactic and scientific work – always perfectly prepared for his lectures. He was appreciated both as a lecturer and as a pedagogue. His students considered Him to be very demanding, nevertheless they liked Him a lot. He actively supported students in organising conferences and scientific discussions. He was a marvellous tutor – a supervisor of numerous doctoral theses. In recognition of His achievements in scientific and didactic work, he was honoured with many individual and team rewards by the Ministry of Science and Higher Education, the Rector of the Warsaw School of Economics (SGH) and the Rector of the Technical University of Radom.

He was interested in sport, especially football. Since he was a youngster he played football, first in a school team; as a student and, then, a lecturer he took part in university tournaments as a goalkeeper. Professor Józef Misala was a very open, kind and friendly person. He always had time for everyone. The door of his office were always open to others.

He died of an illness on November 24th 2011.

Amongst his most important publications are to be found:

Books and monographs

Stosunki gospodarcze Wschód-Zachód. Formy i mechanizmy (*East-West Economic Relations. Form and Mechanisms*), with P. Bożyk, PWE, Warsaw 1989.

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Powiązania gospodarcze Polski z Unią Europejską, Rosją i Ukrainą na przestrzeni wieków w świetle teorii (Economic Relations of Poland with the European Union,

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Wymiana międzynarodowa i gospodarka światowa. Teoria i mechanizmy funkcjonowania (International Turnover and the World Economy. Theory and Mechanisms), Warsaw School of Economics, Warsaw 2005.

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Book Reviews

Janusz Świerkocki

ZARYS EKONOMII MIĘDZYNARODOWEJ (AN OUTLINE OF INTERNATIONAL ECONOMICS)
PWE, Warszawa 2011, pp. 332

J. Świerkocki's textbook *Zarys ekonomii międzynarodowej* (*An Outline of International Economics*) is one of the first Polish textbooks intended for the course in „International Economics" taught at the 2nd cycle degree programme at the Faculty of Economics.

The textbook consists of three parts which jointly cover 12 units (Chapters), a glossary of relevant terms, bibliography and a statistical annex „World Economy and global trends" Each unit is followed by Revision Questions.

Part One of the textbook focuses on the theory of international trade. The author, in a concise and accessible way, discusses classical (Chapter 1) and contemporary (Chapter 2) theories of international trade. Both chapters provide an excellent introduction to a discussion on interrelationships between economic growth and international trade comprised in Chapter 3, in which the Heskscher-Ohlin theorem is the springboard for the discussion. The author outlines the problems of sustainable and unsustainable growth, benefits and threats connected with economic growth in open economy, types of *terms of trade* and then provides examples of the effect of international trade on economic growth.

The last Chapter (4) in this part is dedicated to the issue of international flows of factors of production. The theoretical discussion is richly supported with numerous examples from economic practice and statistical data.

Part Two of the reviewed textbook deals with trade policy. Chapter 5 discusses the rules and tools of trade policy. Ample space is given to the role of GATT and WTO in the process of international trade liberalization and unification of trade policy.

Chapter 6 concerns theoretical aspects of trade policy. In a clear and accessible manner it discusses economic effects of practical implementation of the trade policy tools. Then, the arguments in favour of protectionism and their justification are outlined. What seems to be missing here are explicit arguments against protectionism (in favour of free trade) although point 6.3.1 entitled „Arguments poorly justified from the economic point of view" imply such arguments. The last points of this Chapter concentrate on the strategic trade policy and industrial policy. The author finishes this Chapter with a characteristic fragment the content of which has our full support: „Protection of infant sectors of industry, strategic trade

policy and industrial policy are not only well-thought out but also commonsense arguments in favour of protectionism in trade. However, advantages of these concepts do badly in comparison with practice. According to one of the authors of the strategic theory of trade policy, who being its „father" cannot be suspected of groundless criticism of his own achievements – „free trade, with the least number of exceptions, may not be the best conceivable policy from the theoretical point of view, but it certainly is the best of all policies that a country may follow" (P. Krugman – reviewer's note).

Chapter 7 discusses regional trade agreements and economic integration problems. The author presents the forms of economic integration and its economic consequences in static and dynamic approach. Next, he characterizes selected integration groups: the European Union, North American Free Trade Agreement (NAFTA) and Common Southern Market (MERCOSUR).

Part Three focuses on international financial relationships. It opens with Chapter 8 which discusses the currency market and its functions in economy, exchange rates and basic exchange rate theories.

The next chapter outlines macroeconomic links between domestic and world economy including the issues of the balance of payments and external balance of payments.

Charter 10 discusses application of economic policy to restore the external balance of payments and effects of this policy for the external BOP and exchange rate.

The history and functioning of the international currency system are the subject matter of Chapter 11 as well as exchange rates occurring in Poland in the last 21 years, and theoretical and practical problems of currency integration in the European Union.

Chapter 12 describes functioning of the international financial market. It discusses the origins of the international financial market and its functions in world economy, mechanisms of disturbances in international financial markets, debt and currency crises, causes and courses of selected currency crises and the latest international financial crisis. The last part of the chapter examines the new role of the International Monetary Fund.

The textbook contains an extensive bibliography comprising the sources (books and articles) quoted in it.

In summary it must be stated that the reviewed textbook testifies to the author's reliable, competent and long-lasting research effort as well as his teaching experience. In the textbook the author used the results of his long-term scientific research. The textbook is a valuable source of up-to-date knowledge on international economics. In our opinion it is an excellent textbook.

The textbook which was written with students' needs in mind is, without a doubt, a useful reading matter for economic policy makers and practitioners dealing with the problems of world economy, international trade and finance.

Sławomir I. Bukowski

The Fifth Conference „Money, economic policy and the economic growth", 27-28 June 2011 and its scientific achievements

The Fifth Conference „Money, economic policy and the economic growth" was held in the Centre for Ecological Education and European Integration of the National Forests in Jedlnia Letnisko on 27-28 June 2011. It was organized by the Department of Economic Policy and Banking in cooperation with the Department of International Business and Finance and the Department of International Economic Relations and Regional Integration. Professor Jan L. Bendarczyk – the Head of the Department of Economic Policy and Banking – was the Chairman of the Scientific Committee, Dr. Aneta Kosztowniak was the Chairperson of the Organizing Committee and Dr. Ireneusz Pszczółka was the secretary.

Scope of the conference's topics was very broad. That was mainly related to the condition of modern money and the impacts of turmoil in the financial sector on the prospect of economic growth in Poland as well as abroad. The impact of financial crisis on the European Union countries, including the euro area, was also discussed. The method of mitigating the negative effects of economic and financial crisis and the most important results achieved so far, the issues of the neutral inflation and costs of remaining in the euro area were considered along with the discussion on the future of Economic and Monetary Union. A significant block of thematic session was that on the role of banks in the financial crisis, regulation and anti-cyclical response of selected central banks in Europe to changes in inflation and unemployment.

Participation in the conference attracted a large group of outstanding scientists from leading academic centers in the country: Warsaw School of Economic, University of Lodz, Cracow University of Economics, University of Szczecin, Catholic University of Lublin, Warsaw University, Wroclaw University of Economics, Poznan University of Economics and others. All participants of the conference emphasized the high level of knowledge and organizational arrangements.

The conference had four plenary session. During the first day of the conference two sessions were held. In the first session following speakers delivered their speeches: Professor Tomasz Gruszecki (Catholic University of Lublin), Professor Jan L. Bednarczyk and Dr. Marzena Sobol, Professor Sławomir Bukowski, Professor Witold Bień (Technical University of Radom). In the second session speeches were delivered by: Professor Katarzyna Żukrowska (Warsaw School of Economic), Professor Stanisław Flejterski (University of Szczecin), Professor Janusz Bilski and Professor Małgorzata Janicka (University of Lodz).

During the second day of the conference the third and fourth sessions were

held. In the third one the following speakers delivered their speeches: Professor Witold Kasperkiewicz, Professor Wacława Starzyńska (University of Lodz), Profesor Janusz Kudła (Warsaw Univeristy). In the last session speeches were delivered by Dr. Michał Skopowski Poznan University of Economics, Dr. Tomasz Grabia (University of Lodz) and Professor Kazimierz Ortyński (Technical University of Radom).

The Important results of the conference are three publications, including two published in the Professional Publishing House CeDeWu in Warsaw and one in the Publishing House of the Technical University of Radom. Reviewers of all publications are: Professor Dariusz Błaszczuk and Professor Bogusław Ślusarczyk.

The first publication titled „From crisis to recovery. The dilemmas of modern financial policy" was edited by Professor Jan L. Bednarczyk and Professor Wiesława Przybylska-Kapuścińska (Poznan University of Economics). The publication has 268 pages, contains 15 articles included in the three thematic parts. The first part: „Central banking and economic stability", second part: „Challenges for the banking sector and fiscal authorities", third part: "Debt and economic development. Polish perspective".

The second publication titled „Economic growth and international finance" was edited by Professor Sławomir Bukowski and Professor Józef Misala. This publication was dedicated to the memory of Professor Stanisław Miklaszewski. The publication has 304 pages, contains 15 articles included in the three thematic parts. The first part: „Problems of economic growth", second part: „Problems of international finance",

third part: „Problems of overcoming consequences of the recession and financial crisis".

The third publication titled „The financial conditions of economic development" was edited by three members of the Department of Economic Policy and Banking: Dr. Aneta Kosztowniak, Dr. Ireneusz Pszczółka, Dr. Marzena Sobol, and published by the Publishing House of the Technical University of Radom. The publication has 296 pages, contains 15 articles included in the four thematic parts. The first part: „Economic growth and its determinants", second part: „The banking sector after the financial crisis", third part: „Problems of the insurance sector" and fourth part: „Changes in the corporate sector and its environment".

During this two-day conference a bicycle tour after the Kozienicka Fores and the Second Financiers Race around the Siczki Lake were held. In this race all conference participants and students of Technical University of Radom could take part. These events have shown that the high level of knowledge during the conference can be combined with healthy time spending.

Professor **Jan L. Bednarczyk**,
the Chairman of the Scientific Committee,
the Head of the Department of Economic
Policy and Banking

Dr. **Aneta Kosztowniak**,
the Chairperson of the Organizing Committee

Dr. **Ireneusz Pszczółka**,
the Secretary