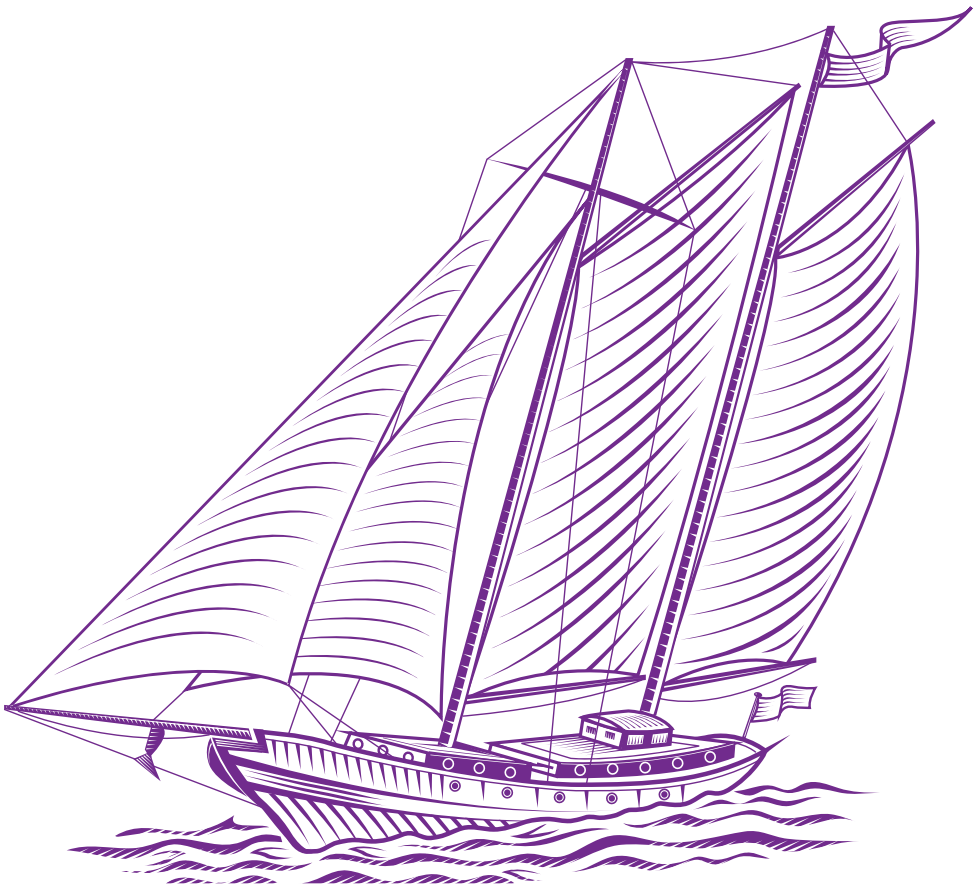
STUDIA UNIVERSITATIS
BABEŞ-BOLYAI



NEGOTIA

2/2012

YEAR **Volume 57 (LVII) 2012**
MONTH **JUNE**
ISSUE **2**

S T U D I A
UNIVERSITATIS BABEŞ–BOLYAI

NEGOTIA

2

Desktop Editing Office: 51st B.P. Hasdeu, Cluj-Napoca, Romania, Phone: +40-264-405352

CUPRINS – CONTENT – SOMMAIRE – INHALT

STUDIA UBB NEGOTIA, LVII, 2, 2012, pp. 3 - 26
(RECOMMENDED CITATION)

A FRONTIER MARKET CASE: DOES BUCHAREST STOCK EXCHANGE HAVE A LEADING DOMESTIC INDEX?

CORNELIA POP[1], DRAGOŞ BOZDOG[2], ADINA CĂLUGĂRU[3]

ABSTRACT. A frontier market can play a significant role in the diversification of a global portfolio. Equally important are the companies selected in order to fulfill the diversification needs. We focused on Bucharest Stock Exchange, considered a frontier market, and we analyzed its own diversification power based on the presence/ absence of a leading index that influences the price evolution of the other traded companies.

This idea was suggested by the strong position of the five listed closed-end funds in the equity sector of the Bucharest Stock Exchange. We show through combined correlation, regression and Granger-causality analysis that BET-Fi has a direct influence on Bucharest Stock Exchange blue chips represented by BET index. As follows, BET-Fi can be considered an index leader and we discuss the general implications of this finding.

Key Words: frontier market, financial investment companies, Granger-causality, regression, leading index

JEL classification: G10, G11

Introduction

The European stock exchange landscape increased its diversity with the accession to European Union (EU) of the 12 new member states in May 2004 (10 countries: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovak Republic and Slovenia) and January 2007 (2 countries: Bulgaria and Romania). These new EU member states will be referred from now on as EU12 new member states or simply EU12.

Based on FTSE Index Company country classification (last updated March 2012 and presented in table 1), 3 of the new member states are considered 'advanced emerging markets', other 8 members states are classified as 'frontier markets', while Latvia is not included in any of the FTSE country categories.

[1] Prof.dr., Faculty of Business, Babes-Bolyai University, Cluj-Napoca, Romania, cornelia.pop@tbs.ubbcluj.ro
[2] Department of Mathematical Sciences, Stevens Institute of Technology, Hoboken, NJ 07030, USA, dbozdog@stevens.edu
[3] MarketAxess, New York, NY 10117, USA, acalugaru@marketaxess.com

Table 1 below presents several synthetic data regarding the equity sector of the EU12 stock exchanges. It can be seen that the gap between the advanced emerging markets and the frontier markets is significant in market capitalization, trades, turnover, and turnover velocity.

While no general accepted definition of frontier markets exists, the term 'frontier markets' is used to describe a subset of emerging markets which are smaller (lower market capitalization) and less liquid than the more developed emerging markets.

(http://www.investmentpostcards.com/2011/05/09/mark-mobius-on-frontier-markets/). Another popular group of opinions regarding these frontier markets consider them:

- as yet to be discovered by international investors;
- as having an important growth potential;
- and offering a limited amount of information (mainly generated through research) for interested investors.

From Table 1, the EU12 frontier markets are complying with the low capitalization and low liquidity (through turnover velocity) criteria.

Table 1. Stock exchanges of the EU12 rank based on market capitalization

	Data for equity sector Average annual figures for the period 2006-2010						
Stock Exchange	Market capitalization (EUR m)	Turnover (EUR m)	Trades (thou)	Listed companies	Mkt.cap. in GDP (%)	Turnover velocity (%)	Classification according to FTSE
Warsaw Stock Exchange	113,951	51,223	12,347	434	35.97	47.47	Advanced emerging
Prague Stock Exchange – CEESEG[1)]	35,096	26,747	1,075	29	25.68	76.51	Advanced emerging
Budapest Stock Exchange - CEESEG	23,652	23,887	2,190	45	24.80	106.60	Advanced emerging
Bucharest Stock Exchange	**13,007**	**1,330**	**691**	**61**	**11.26**	**10.47**	**Frontier**
Ljubljana Stock Exchange - CEESEG	11,042	1,597	171	84	32.14	13.61	Frontier
Cyprus Stock Exchange	10,080	2,055	448	122	63.12	20.61	Frontier
Bulgarian Stock Exchange	8,110	1,689	271	381	25.65	17.70	Frontier
Vilnius Stock Exchange – NASDAQ OMX	4,934	627	204	41	18.30	11.29	Frontier
Bratislava Stock Exchange	3,916	92	8	175	6.90	2.54	Frontier
Malta Stock Exchange	3,393	75	13	18	60.49	2.23	Frontier

	Data for equity sector Average annual figures for the period 2006-2010						
Stock Exchange	Market capitalization (EUR m)	Turnover (EUR m)	Trades (thou)	Listed companies	Mkt.cap. in GDP (%)	Turnover velocity (%)	Classification according to FTSE
Tallinn Stock Exchange - NASDAQ OMX	2,713	684	94	17	18.61	25.40	Frontier
Riga Stock Exchange – NASDAQ OMX	1,433	49	25	32	7.54	3.10	Not classified

Source: authors' calculations based on data provided by FESE, NASDAQ OMX Baltic, EUROSTAT and FTSE Index Company

Note 1): CEESEG comes from Central and Eastern European Stock Exchange Group created in September 2009 and including the following stock exchanges: Budapest, Ljubljana, Prague and Vienna.

The academic literature on frontier market research is on the path of development. The relative limited number of studies available debated both the frontier markets as diversification opportunities for international investors and their behavior when frontier markets are concerned [Speidell and Krone (2007) and Speidell (2008 and 2009)], or focused on risk and return inside frontier markets. [Girard and Sinha (2008), DeGroot et al. (2010a and 2010b)].

A frontier market can play a significant role in the diversification of global portfolios. Equally important are the companies selected in order to fulfill the diversification needs. We focused on Bucharest Stock Exchange, considered a frontier market, and we analyzed its own internal diversification power based on the presence/ absence of a leading index that influences the price evolution of the other traded companies.

The position of the Bucharest Stock Exchange among the EU12 makes it worth considering for inclusion in global portfolios. However, the peculiarities of the equity sector at Bucharest Stock Exchange, dominated for the period under analysis by five listed closed-end funds, might show a higher than expected risk.

Further, the paper is structured in four parts: a brief review of literature on closed-end funds, a presentation of the Romanian closed-end funds dominant position at Bucharest Stock Exchange, an investigation of the market index leaders based on Canegrati's [2008] research, and the conclusions of the current analysis. Due to the variety of data used, a specific data presentation is included for each section.

Review of literature

The international literature on closed-end funds is diverse, but the focus tends to be on their puzzling abnormality: the closed-end fund discount.

A large number of scientific papers discuss the causes and the factors responsible for the closed-end fund discounts/ premium; among them we mention Rozeff [1991], Gemmill and Thomas [2004], Richard and Wiggins [2000], Cherkes [2001 and 2003], Malkiel and Xu [2005], Brenan and Jain [2008], Wermers et al. [2007], Chang et al. [2008], Manzler and Slezak [2008], Charron [2009]. All the studies mentioned above analyze closed-end funds traded on United States, United Kingdom and, recently, Mainland China stock exchanges.

Another, however smaller, category of studies tries to explain the role of the market sentiment in relation with the closed-end fund discounts/ premium: Brauer [1993], Bodurtha et al. [1993], Gemmill and Thomas [2000], Doukas and Milonas [2004], Guner and Onder [2009].

Other studies are concentrated on the analysis of the closed-end fund discounts behavior, the closed-end fund share prices and returns behavior, among the most recent being Bleaney and Smith [2005], Flynn [2006], Cherkes et al. [2006], Branch et al. [2007], Jones and Stroup [2010].

The above mentioned issues regarding closed-end funds are under scrutiny when considering only emerging markets closed-end funds or single country closed-end funds, also traded mainly in the United States and the United Kingdom: Chan et al. [2005], Nishiotis and Markis [2006], Ismailescu [2007], Brau and Rodriguez [2009].

Only one paper of the reviewed literature, Jindrichovska and Rhys [2000], discuss the role of closed-end funds (of a particular form) in the Czech Republic privatization process.

We could not find any other studies on closed-end funds traded on small emerging markets (frontier markets) – like the case of Romania – which manage predominantly domestic assets and influence the stock exchange's performance.

While in the printed media, articles about the 5 listed closed-end funds could be found frequently, Romanian academic literature contains only several papers that investigate these funds in detail. The paper of Dima et al. [2002] deals with informational asymmetry of the 5 closed-end funds quotas - an empirical approach, and concludes that these funds quotas' evolution is subject of an important asymmetry induced by changes in information provided by different operators on financial market, asymmetry which leads to a substantial volatility of current and expected level of quotas.

Pop et al. [2005] investigated several aspects regarding the fives listed closed-end funds evolution in Romania and one interesting conclusion was the fact that the these funds' contribution to Bucharest Stock Exchange development was important (for the period under analysis); their listing at Bucharest Stock Exchange triggered an increased interest for the Romanian main stock exchange. This conclusion could be maintained even if the Granger test (performed on the series of data until July 2005) was not conclusive.

The paper wrote by Paun [2006] is available only in Romanian and deals with measurement of the fives listed closed-end funds performances using the Morningstar model. While the model generated good results when only one closed-end fund was selected, it did not answer the question regarding multiple choices among all the 5 closed-end funds.

Dragota et al. [2008] tries to deal with closed-end puzzle at the emerging market level based on the case of the five listed closed-end funds, while Horeanu [2009] concentrates on the branding of the five listed closed-end funds.

The present paper continues the investigation started by Pop et al. [2005], developed by Pop et al. [2009] and by Pop et al. [2010] based on Granger causality, trying to establish if the 5 listed closed-end funds, through their dedicated market index, have an influence on the other Romanian companies price evolution. Through this investigation, the paper adds its conclusion to the thin body of academic literature on listed closed-end funds within a frontier market like Bucharest Stock Exchange and their influence on the internal diversification power of such a market.

The 5 listed closed-end funds at Bucharest Stock Exchange: What SIFs are and their position within the exchange

SIFs is the abbreviation for the Romanian name 'Societati de Investitii Financiare' of the five Romanian Financial Investment Companies. They were created on November 1st, 1996 when the Law no. 133/ 1996 was issued and decided the transformation of the former five Private Property Funds in SIFs[4].

SIFs' creation implied the incorporation of these new five investment companies. Due to the fact that SIFs were incorporated as public limited companies with assets under management (mainly Romanian shares), SIFs can be considered closed-end funds, equity funds sub-type. Under the current Romanian regulations[5],

[4] The 5 Private Property Funds (PPFs) were created by and functioned under the Law no. 58/ 1991. They were part of the privatization process that took place during the 1990s in Romania. According to the Law no. 58/ 1991, to each of the 5 PPFs a number of Romanian companies were allocated. The PPFs were allowed to own maximum 30% of the allocated companies' shares (former state ownership). The 5 PPFs were formed based on the regional concentration of the allocated companies. Until October 1996, there were 5 regional funds: PPF1 Banat-Crisana, PPF2 Moldova, PPF3 Transilvania, PPF4 Muntenia and PPF5 Oltenia. In November 1996, the PPFs were transformed as follows:

PPF1 became SIF1 Banat-Crisana
PPF2 became SIF2 Moldova
PPF3 became SIF3 Transilvania
PPF4 became SIF4 Muntenia
PPF5 became SIF5 Oltenia.

[5] According to the Law no. 297/ 2004 and the Regulation no. 15/ 2004, issued by Romanian National Securities Commission, regarding SIFs.

SIFs are defined as 'other undertakings for collective investment in transferable securities' (in Romanian 'alte organisme de plasament colectiv' or AOPC) as the term 'closed-end funds' is rarely used in Romania.

SIFs were listed on Bucharest Stock Exchange (BVB[6] from now on) on November 1st, 1999 and ever since they maintained a special position within BVB's main equity category, concentrating most of the investors' attention.

For this descriptive section of the paper only secondary data were used. The data were extracted from the daily, montly and annually BVB trading reports Other data were collected from the Romanian National Bank monthly publications. When appropriate, average figures for the period under scrutiny were calculated and used to highlight SIFs position within the Bucharest exchange market.

For the present paper, BVB is considered to be represented by BET and BET-C indices. The oldest BVB indices are: BET (Bucharest Exchange Trading) and BET- C (Bucharest Exchange Trading – Composite). BET is calculated since September 1997; it can be considered a blue chip index since it includes in its portfolio the best 10 listed companies, most of them traded inside the 1st category. BET portfolio does not include any SIFs. The second oldest index, BET- C is calculated since April 1998; BET-C portfolio includes all BVB companies, except for the 5 SIFs.

SIFs Evolution

Since the beginning of their existence, SIFs situation was unusual [Apostu, 1998]:

1. they inherited the portfolios owned by the former PPFs which had no alternative in choosing the companies they owned; their portfolio structure was strongly influenced by the Romanian complicated privatization process; in November 1996, SIFs' portfolio structures were still under discussion and negotiation with the State Ownership Fund;
2. they had a large number of shareholders (over 5 million each) divided in two categories: those who subscribed to PPFs from the beginning (1996) and those who became shareholders later on - some of them during 1997 and others in 1998 - as a result of the countless number of alterations to the laws and regulations concerning the Romanian privatization process. Many of these investors were not even aware of the fact that they were actually SIFs' shareholders. There were also many changes to the investors' database (e.g. changes of names and addresses, deaths etc.) which were not tracked properly.

[6] BVB is the abbreviation for Bursa de Valori Bucuresti (Bucharest Stock Exchange) and was chosen for use in order to avoid any confusion with Budapest Stock Exchange or Bulgarian Stock Exchange.

During 1997 and 1998, SIFs administrators had the difficult tasks of identifying the entire number of SIFs' shareholders and 'sorting out the gold from the mud' in SIFs portfolios (which included hundreds of privatized companies, a mixture of good and bad stakes in different companies)[7].

It was stated that SIFs complexity requested special regulations, but there was no stand alone regulation for SIFs until 2004, while different laws and regulations issued by the Romanian National Securities Commission had chapters dedicated only to SIFs. At the present moment the Law 297/ 2004, which also has a special section dedicated to SIFs, was modified by the Law 208/ 2005, by the Government Ordinance no. 41/ 2005 and by the Law 97/ 2006. The last two regulations were focused mainly on the ownership threshold limit of only 1% of the total number of shares issued which became effective in November 2006[8]. This threshold limit applies to both Romanian and foreign investors.

Due to the large number of shareholders, there was a constant pressure on SIFs to be listed at BVB. SIFs listing at BVB first tier[9] started on November 1st 1999 - 3 years to the date they were created.

SIFs Position at BVB

Despite the low ownership threshold limit and their blurry image created by the lack of clear regulations and transparency, SIFs were considered interesting investment alternatives by an important number of investors. SIFs position and important role at BVB are reflected by the figures presented in tables 2, 3 and 4.

The importance of SIFs in BVB's capitalization was diminished during 2004, when the BVB as a whole registered an important growth – triggered by the interest of, mainly, foreign investors/ foreign investment funds for a country soon to be EU member. The second – and very sharp decrease – was registered in 2008, when the financial crisis had a severe influence on BVB performance and

[7] Numerous discussions and negotiation meetings were held between SIFs representatives and State Ownership Fund regarding SIFs' portfolios during 1997 and 1998. Only at the beginning of 1999, through a Government Emergency Ordinance no.54/ 1998, the situation of SIFs portfolios was clarified.

[8] Previously the maximum number of shares that could be owned at one SIF by a person was 0.1%. Since June 2009 new discussion arises in order to increase the level for the maximum number of shares allowed to be owned in SIFs to 10%. During February 2010 the proposal was discussed in several Government Commissions; the decision was postponed in order to asses its implications. No decision was taken regarding the increased of the current 1% maximal level during 2010 and the situation remained unchanged during the first 6 months of 2011. At the end of 2011 (December 15) a new Law was issued, modifying Law 297/ 2004 which imposed the 1% threshold for SIFs shares. The new threshold is 5%. This change has no influence on the findings and conclusions of the current paper.

[9] First tier is the official name BVB used to designate its first equity category, where the best Romanian companies are listed.

also on SIFs' performances. Years 2009 and 2010 remained under the influence of the financial crisis. SIFs' listing at BVB had an important impact on the Romanian stock exchange activity in 1999 and 2000 and also in 2005, 2006 and 2007, when SIFs represented over 10% of total market capitalization. During the first 3 months of 2011, SIFs seemed to regain the position they held in the past when market capitalization is taken into consideration.

Table 2. SIFs' Capitalization as of December (EUR m) and % of BVB's capitalization

Year	SIFs' Capitalization (EUR m)	% of BVB Capitalization
1999	65.9	17.41
2000	68.1	14.18
2001	125.5	9.22
2002	236.9	8.95
2003	268.1	8.96
2004	612.7	6.96
2005	1783.4	11.65
2006	2524.8	11.79
2007	3076.9	12.51
2008	436.5	3.75
2009	776.7	4.08
2010	700.6	2.93
2011 (March)	2970.5	10.32

Source: BVB data, www.bvb.ro

Table 3. SIFs' position in total BVB and 1st category transactions (average figures for Nov. 1999 - Dec. 2010)

	% of total BVB	% of 1st category
Number of trades	49.04%	61.45%
Volume	29.75%	45.23%
Value	40.88%	49.18%

Source: authors' calculations based on BVB data

Table 4. SIFs daily activity compared with BVB (Nov. 1999 - Dec. 2010)

	BVB total	SIFs
Average number of trades per day	3005	1944
Average volume per day (mil. shares)	28.02	6.49
Average value per day (mil. EUR)	4.96	2.27

Source: authors' calculations based on BVB data

SIFs transactions have an important position within BVB equity market – representing 49% of the total number of trades and around 41% of the total traded value/ turnover; their position is even more important inside the 1st category – where SIFs concentrate around 61.5% of the total trades and about 49% of the total value. When the average figures per day are observed, SIFs trades are at 56% of BVB's total number of trades/ day and around 46% of daily transaction value at BVB.

One explanation for this position might be given by SIFs performances, as presented in table 5 where SIFs performances are measured against the inflation rate, the interest rate for bank deposits and also against the oldest BVB indices BET and BET-C for two sub periods: 2000-2007, the growth period before the financial crisis and 2008-2010, the period of the financial and economic crisis. As Table 5 shows, SIFs realized returns were above the BVB performance represented by BET and BET-C. Even for the period 2008-2010, under the influence of financial and economic crisis, three of the five SIFs registered better performances than other BVB companies and in the case of SIF2 and SIF3, they were even above the average inflation rate of the respective sub period.

Further and more detailed data regarding SIFs performances, PER and DIVY can be found in Annex 1.

Table 5. SIFs annual returns (average % for the two sub periods)

	2000-2007	2008-2010
Inflation rate (%)	18.79	6.51
Interest rate for bank deposits (%)	15.08	9.58
BET annual return (%)	46.08	-0.53
BET-C annual return (%)	41.10	-7.19
SIF1 annual return (%)	74.72	-0.65
SIF2 annual return (%)	83.12	7.75
SIF3 annual return (%)	61.56	8.48
SIF4 annual return (%)	63.97	-23.82
SIF5 annual return (%)	80.51	5.74

Source: authors' calculation based on BVB data and Romanian National Bank data

As the data presented above show, SIFs position inside BVB, mainly inside its 1st category, is a strong one and support the Romanian media news general opinion which considered SIFs 'an engine that stimulated BVB's transactions' over time.

Do SIFs Influence BVB?

The present investigation's starting point is the research made by Canegrati [2008] regarding market index leaders; a complex analysis was performed in Canegrati's paper "In Search of Market Index Leaders: Evidence from World

Financial Markets". The above mentioned research generated the idea of performing a similar test on the Romanian stock exchange, BVB.

The hypothesis we want to test is if BET-Fi is a leading index for BVB represented by BET and BET-C indices.

The data used for this section of the paper are daily returns of the two BVB indices, BET and BET-C, which are considered to represent the stock exchange as a whole, due to their portfolio structure: BET is the oldest and most watched index at BVB and also a blue chip index, while BET-C is the index that includes all BVB companies, except for SIFs. For SIFs, the daily returns of their dedicated sector index, BET-Fi, were used. BET-Fi (BET Financial) was introduced in November 1st 2000 (a year after SIFs were listed). Its portfolio consisted only of SIFs and their importance inside the index was approximate the same, of about 20%. The daily returns were computed based on the closing values of the indices as available in the daily reports made public by BVB.

The analysis was performed over the 2590 observations when the series of data were available for all indices, covering the period between November 2000 (since when BET-Fi became available) and March 2011. The period under research was not extended beyond March 2011 due to the fact that the BET, BET-C and BET-Fi indices' portfolio composition undergone an important change through the introduction of a new fund- Fondul Proprietatea[10]- (BVB symbol FP[11]) on March 21st.

Two sub periods were determined based on the results yielded by the simple correlation coefficient presented in Tables 7 and 8: the first sub period between November 2000 and December 2004 shows a lower level of correlation between BET-Fi and the two older indices BET and BET-C, while the second sub period between January 2005 and March 2011 shows a higher level of correlation.

For the whole period and the two sub periods we applied a simple regression model and also the Granger causality test. We assumed that both models are complementary to each other and they can give a good idea about BET-Fi influence on the indices representing BVB.

Table 6 presents the descriptive statistics for the 2590 observations on BET, BET-C and BET-Fi daily returns and for SIFs daily returns. The excess kurtosis on all indices is significant, indicating important fat tails which are common phenomena inside return series for market indices. The skewness, while negative, it is close to zero indicating relative symmetrical distributions around the mean.

[10] There is no translation of Fondul Proprietatea name in English on the company website: http://www.fondulproprietatea.ro/index.php/pages/en/1/Homepage.html.

[11] Fondul Proprietatea is also a closed-end fund, listed since January 25th 2011 at BVB and cumulated alone an important percentage (around 40%) of the equity segment turnover. Within BET and BET-C indices portfolios Fondul Proprietatea has a weight around 19%, while inside BET-Fi index, FP weight goes up to almost 32%.

Accordingly to Table 6, BET-Fi presents a higher average daily return and a higher risk associated with its portfolio of SIFs than the risk of BET or BET-C portfolios. This result is consistent with the data presented in Table 5 above.

Table 6. Descriptive statistics for BET, BET-C, BET-Fi and SIFs daily returns (Nov.2000 – March 2011)

	BET	BET-C	BET-Fi	SIF1	SIF2	SIF3	SIF4	SIF5
Number of observations	2590	2590	2590	2590	2590	2590	2590	2590
Mean	0.093	0.074	0.127	0.124	0.146	0.120	0.113	0.142
Std. Dev.	1.807	1.656	2.704	3.025	3.155	2.977	2.943	3.050
Skewness	-0.305	-0.577	-0.101	-0.279	-0.263	-0.202	-0.228	-0.238
Kurtosis	7.476	7.291	4.816	4.953	4.642	4.718	4.921	4.744
Largest (1) (%)	14.576	10.89	13.825	13.976	13.935	13.915	13.935	13.976
Smallest (1) (%)	-13.116	-12.12	-16.075	-16.164	-16.245	-16.227	-16.251	-16.251

Source: based on BVB data

Table 7. Correlation between BET and BET-Fi based on daily returns

Entire period	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
0.670	0.196	0.281	0.414	0.535	0.218	0.645	0.580	0.675	0.874	0.769	0.846	0.637

Source: based on BVB data

Table 8. Correlation between BET-C and BET-Fi based on daily returns

Entire period	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
0.674	0.186	0.210	0.472	0.548	0.265	0.637	0.626	0.682	0.874	0.777	0.845	0.612

Source: based on BVB data

We calculated the simple correlations between the daily indices returns (table 7 and 8) and the results show an overall high level of correlation for the entire period under scrutiny (Nov. 2000 – March 2011). However, there were mixed results between 2001 and 2004 and a stronger correlation between 2005 and 2011 (March), while the highest correlation was reached during the turbulences of 2008 and, unexpectedly (due to the negative annual return registered by SIFs), during 2010.

For further analysis a simple regression was used, with BET as the dependent variable and BET-Fi as independent variable, with the general equation:

$$R_{BET} = a + b \cdot R_{BET-FI}$$

Using the regression with daily returns of BET as dependent variable, p-value is less than 0.01 confirming that there is a statistically significant relationship between BET and BET-Fi at a confidence level of 99%. R-squared explains 44.92% of the variability in BET daily returns for the period Nov. 2000 – March 2011. The regression parameters and the associated standard error of the coefficients are presented in Table 9 and Figure 1.

Table 9. Regression coefficients for BET/BET-FI

	Coefficients	Std. Error
a	0.0003642	0.0002639
b	0.4478122	0.0097491

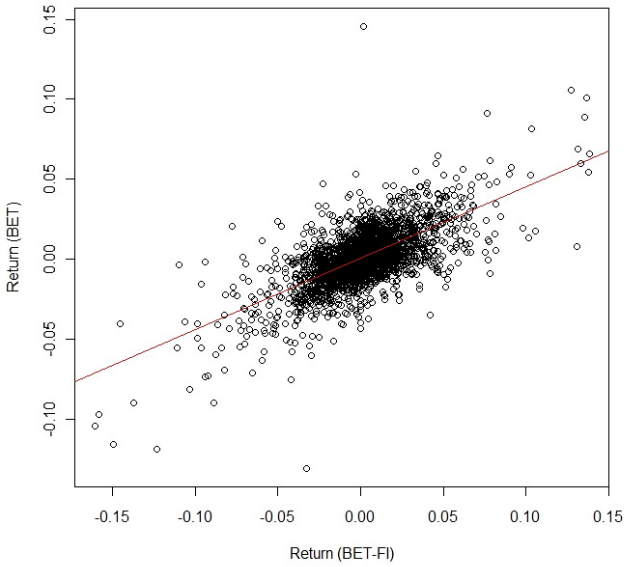


Figure 1. Regression BET/BET-FI

When the regression was applied for two sub-periods: Nov. 2000 – Dec. 2004, respectively Jan. 2005 - March 2011, for the first sub-period – in concordance with the mixed results generated by the simple correlation – R-squared explains 12.641% of BET variability, while for the second sub-period R-squared explains 59.80% of BET variability. From these results only, it can be concluded that BET variability was influenced by BET-Fi, mainly between 2005 and 2011 (March).

We performed a similar analysis for BET-C as dependent variable and BET-Fi as independent variable.

$$R_{BET-C} = a + b \cdot R_{BET-FI}$$

The regression confirms the statistically significant relationship between BET-C and BET-Fi at a confidence level of 99% with p-value less than 0.01. In this case, R-squared explains 45.44% of the variability in BET-C daily returns Nov. 2000 – March 2011. The regression parameters and the associated standard error of the coefficients are presented in Table 10 and Figure 2.

Table 10. Regression coefficients for BET-C/BET-FI

	Coefficients	Std. Error
a	0.0002161	0.0002407
b	0.4127791	0.0088936

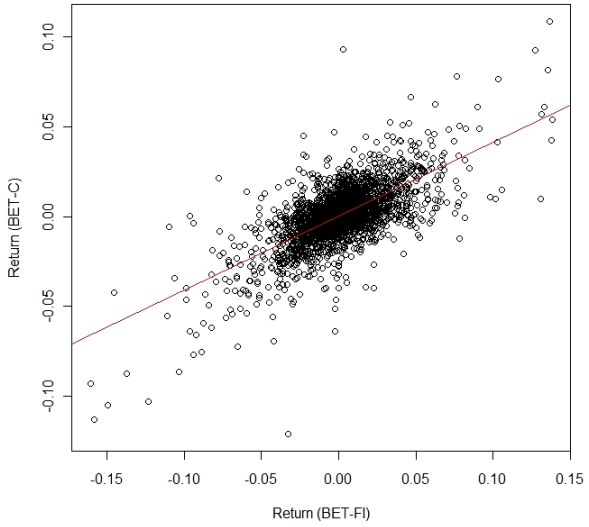


Figure 2. Regression BET-C/BET-FI

Furthermore, the regression was applied for the two sub-periods of interest. For the first period Nov. 2000 – Dec. 2004, R-squared explains 12.63% of BET-C variability, and for the second period Jan. 2005 - March 2011, R-squared explains 60.94% of BET-C variability.

Based on this regressions we observe the that there is an increase in explaining power of BET-Fi over the two indices BET and BET-C in the last 10 years. The overall regression for the whole period confirms the interdependence between these indices.

A Granger-causality test was also performed in order to determine if BET-Fi can be considered a market index leader for BVB, represented by BET index.

The bivariate Granger causality test for BET and BET-Fi evaluates whether the past values of BET-Fi are useful for predicting BET, once the BET evolution has been modeled. The test is implemented by regressing BET on *m-lag* values of BET and *m-lag* values of BET-Fi.

$$R_{BET}(t) = a_0 + a_1 R_{BET}(t-1) + \cdots + a_m R_{BET}(t-m) + \varepsilon_t$$

$$R_{BET}(t) = a_0 + a_1 R_{BET}(t-1) + \cdots + a_m R_{BET}(t-m) + b_1 R_{BET-FI}(t-1) + \cdots + b_m R_{BET-FI}(t-m) + \varepsilon_t$$

The null hypothesis that BET-Fi does not Grange-cause BET is accepted if and only if no lagged values of BET-Fi are retained in the regression. An F-test is then used to determine whether the coefficients of *m-lag* values of BET-Fi are jointly equal zero. We report the p-values for each F- test.

In order to get a comprehensive view of the possible causality between the variables, we perform the test for 60 distinct lags for 2 different cases: the entire period November 2000-March 2011, and the two sub-periods November 2000 – December 2004 and January 2005-March 2011. The Granger test is applied in two instances for BET-Fi causality on BET and BET causality on BET-Fi. If both tests have a low p-value, then the implied causality becomes inconclusive. Otherwise a significant p-value indicates a possible causality. The results are presented in Figure 3 below.

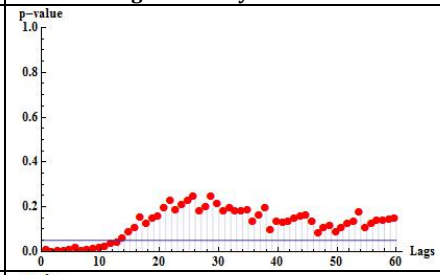
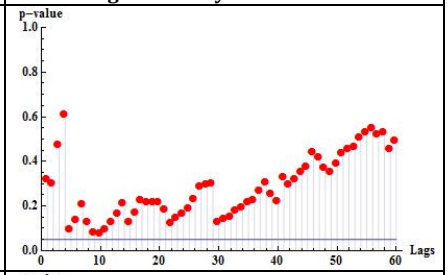
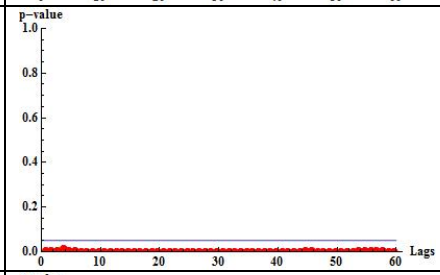
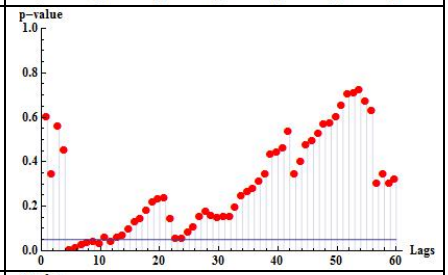
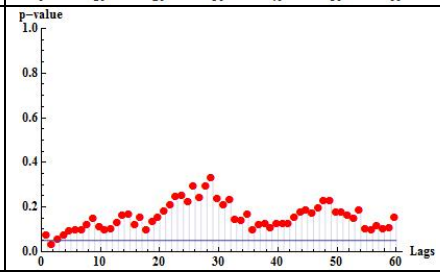
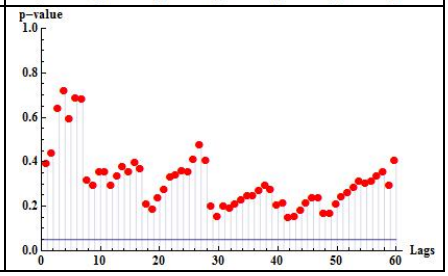
Period	BET-Fi Granger causality on BET	BET Granger causality on BET-Fi
2000-2011		
2000-2004		
2005-2011		

Figure 3. Granger causality test p-values for BET/BET-FI

As it can be observed from Figure 3, for the entire period under scrutiny (Nov.2000 – March 2011) BET-Fi Granger causes BET for lags up to 14, while BET does not Granger cause BET-Fi. For the sub period Nov.2000 – Dec.2004, BET-Fi Granger causes BET for all the lags; BET occasionally Granger causes BET-Fi for lags between 4 and 12. For the sub period Jan.2005 – March 2011, BET-Fi Granger causes BET for lags between 2 and 4; BET does not Granger cause BET-Fi.

A similar dual Granger test is performed to estimate if BET-Fi implies causality on BET-C. The results are presented in Figure 4 below.

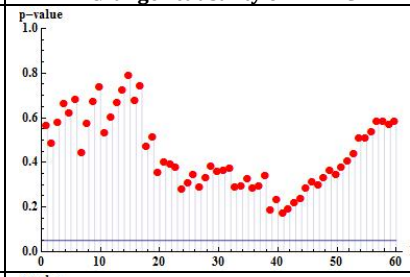
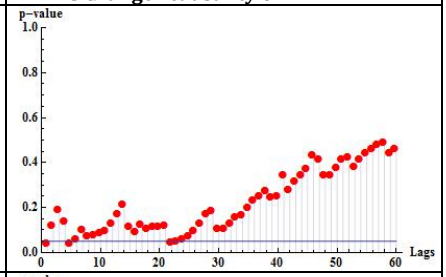
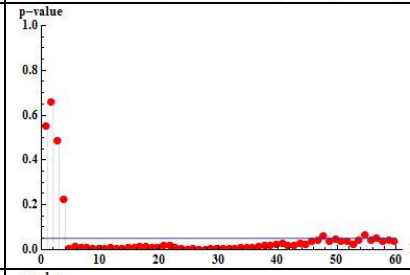
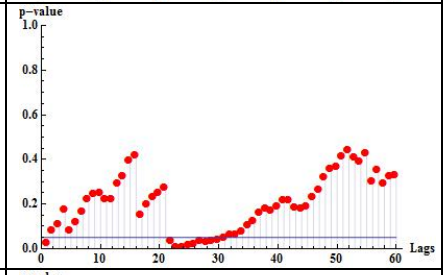
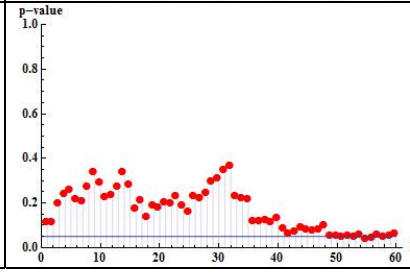
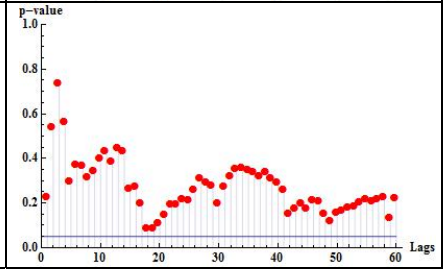
Period	BET-Fi Granger causality on BET-C	BET-C Granger causality on BET-Fi
2000-2011		
2000-2004		
2005-2011		

FIGURE 4. Granger causality test p-values for BET-C/BET-FI

As it can be observed from Figure 4, for the entire period under scrutiny (Nov.2000 – March 2011) BET-Fi does not Granger causes BET-C, while BET-C does occasionally Granger cause BET-Fi for 2 lag, and lags 4 to 6 and 20 to 24. For the sub period Nov.2000 – Dec.2004, BET-Fi Granger causes BET-C for all

the lags; BET-C occasionally Granger causes BET-Fi for 2 lags and lags between 20 and 30. For the sub period Jan.2005 – March 2011, BET-Fi Granger causes BET but only for lags between 50 and 60; BET-C does not Granger cause BET-Fi.

A selection of the Granger causality test results for BET/BET-Fi and BET-C/BET-Fi is presented in Table 11.

TABLE 11. BET-FI/BET – Granger causality probabilities for lags 1 to 15 between November 2000 and March 2011

Lags	BET-FI causes BET	BET causes BET-FI	BET-FI causes BET-C	BET-C causes BET-FI
1	0.0068	0.3234	0.5668	0.0391
2	0.0006	0.3037	0.4833	0.1205
3	0.0016	0.4759	0.5790	0.1926
4	0.0036	0.6101	0.6623	0.1379
5	0.0106	0.0959	0.6195	0.0396
6	0.0181	0.1396	0.6803	0.0615
7	0.0054	0.2088	0.4451	0.1027
8	0.0077	0.1279	0.5759	0.0745
9	0.0135	0.0850	0.6708	0.0777
10	0.0199	0.0781	0.7372	0.0884
11	0.0241	0.0964	0.5331	0.0983
12	0.0349	0.1286	0.6024	0.1301
13	0.0429	0.1672	0.6657	0.1723
14	0.0613	0.2126	0.7247	0.2146
15	0.0867	0.1301	0.7877	0.1150

From the results above, we consider that: BET-Fi Granger causes BET for small lags, in general; while BET does not Granger cause BET-Fi, in general. BET-Fi does not Granger cause BET-C, in general; BET-C does not Granger cause BET-Fi, in general.

The results of these tests partly confirm the hypothesis that BET-Fi can be considered a BVB index leader for the blue chip shares included in BET index portfolio. The results for the influences of BET-Fi over BET are consistent with the data generated by the regression test and with the data presented in the first part of this paper which showed the importance of SIFs inside BVB first tier/ category of shares, where the blue chips are listed.

The results for the causality between BET-Fi and BET-C are mixed and further investigations are necessary since the results are not consistent with the regression test and with the data presented in the first part of this paper which showed the importance of SIFs inside BVB.

The strong Granger causality between BET-Fi and BET (BET-Fi Granger causes BET for all lags), respectively BET-C (BET-Fi Granger causes BET-C for all lags) for the sub period Nov.2000 – Dec.2004 might be explained by the fact

that during that period of low level of transaction and consistent undervaluation of BVB shares, the investors were looking at SIFs as an indication and inspiration of market movements. For this sub period BET-Fi was a true and complete index leader for BVB.

The situation changed in 2005, after the 'discovery' of BVB shares by foreign investors; the entry of new and more powerful foreign investors diversified the trading activity, the investors' attention being redirected toward other shares listed at BVB, while SIFs remained a powerful group of shares; but their influence over BVB blue chips diminished.

Conclusions

BVB (Bucharest Stock Exchange) is considered a frontier market. After a weak and unconvincing evolution between November 1995 (when BVB opened for transactions) and October 1999 – due to the inherent beginning difficulties and to the indirect influences of the 1997 Asian crisis and the 1998 Russian crisis – BVB attractiveness grew, first for the domestic investors, (since SIFs started trading in November 1999), and later for the foreign investors.

The importance of SIFs in BVB's activity is highlighted in tables 1, 2 and 3. SIFs represent – in average – 9.44% of BVB capitalization between the end of 1999 and the March 2011. Also SIFs concentrated – in average, for the same period – about 49% of BVB trades, around 30% of BVB volume and around 41% of BVB trading value/ turnover.

Due to this significant position SIFs gained inside BVB trading, it was only natural to ask if they have an influence over the BVB evolution.

In the last section of the current paper we showed through combined correlation, regression and Granger-causality analysis the fact that BET-Fi might have had a direct influence on BVB blue chips represented by BET index. This conclusion is supported also by the results of the simple correlation, presented above. As follows, BET-Fi can be considered a BVB index leader for the blue chips (first tier/ category) traded at BVB.

However, mixed results were obtained when we considered the exchange in total, through BET-C index; the regression confirms the statistically significant relationship between BET-C and BET-Fi at a confidence level of 99% with p-value less than 0.01; in this case, R-squared explains 45.44% of the variability of BET-C daily returns Nov. 2000 – March 2011. The Granger causality test shows no influence of BET-Fi on BET-C.

Further research is necessary in order to better understand SIFs influences on BVB.

The results obtained until now might be explained through investors' perception of SIFs. SIFs are listed at BVB first tier/category, thus have a special

section within the daily reports. This situation might generate a direct subconscious association by investors of SIFs with the other BVB blue chips, while only several of these blue chips (less than 10) were and are included in SIFs portfolios.

In regard to BET-C, BVB investors' have the tendency to ignore the fact that about 25 companies listed on the 2nd tier/ category of BVB (part of the BET-C portfolio) are included in SIFs portfolios. This 'blindness' of the closed-end funds investors' is a common fact; when trading SIFs, a large number of their investors ignore the structure of SIFs portfolios.

While further investigations of SIFs investors' behavior are necessary, the results might be distorted by the fact that starting with January 2011, a new closed-end fund (in Romanian, Fondul Proprietatea[12]), similar to SIFs, floated on BVB and so far, it concentrated most of the investors attention. While it is too soon to generalize, the way Fondul Proprietatea concentrates trades, volume and trading value, is similar with the situation registered by SIFs during the first 6 months of their trading in 1999/ 2000.

What the current paper highlights is the peculiar situation of a frontier market (as considered by FTSE, MSCI-Barra and Standard & Poor's) characterized by a lack of sophistication and a small number of investors. These are factors that generate the unusual situation of the 5 SIFs that over-shadow an entire market and of the sector index (BET-Fi) that became the leading index for the entire blue chips category traded at BVB. This conclusion is important for any investor, suggesting that if someone choose to invest in a combination of all the 5 SIFs, further diversification is difficult to be obtained due to BET-Fi's influence over BET. While BET-Fi's influence on BET-C is not clear, further diversification through the 2nd tier/ category listed companies should be closely watched. This becomes necessary as those companies that are also part of SIFs portfolios should be avoided because the regression results might indicate a strong correlation between SIFs returns and those companies' returns.

All these indicate that BVB has yet a long road ahead in order to reach an adequate level of market efficiency.

REFERENCES

Apostu, M., 1998, SIF'98: o cotare imposibila (1), Piata Financiara nr.6/ iunie 1998

Bleaney, M., Smith, R.T., 2005, Closed-End Funds in Emerging Markets, CREDIT Research Paper, Centre For Research in Economic Development and International Trade, University of Nottingham, http://cosmic.rrz.uni-hamburg.de/webcat/hwwa/edok05/gb457g/CRP05-03.pdf

[12] Fondul Proprietatea was intended as an investment vehicle to compensate Romanians who had assets expropriated by the communists.

Bodurtha, J.N., Kim, D-S., Lee, C.M.C., 1993, Closed-End Country Funds and U.S. Market Sentiment, Review of Financial Studies 8, pp.879-918

Branch, B., Ma, A., Sawyer, J., 2007, Closed-End Fund Performance on a Daily Basis: the Discovery of a New Anomaly, http://www.fma.org/Orlando/Papers/CLOSEDENDFUNDPERFORMANCEONADAILYBASISnJan07.pdf

Brau, J.C., Rodriguez, J., 2009, An Empirical Analysis of Mexican and US Closed-End Mutual Fund IPOs, Research in International Business and Finance, Volume 23, Issue 1, January 2009, pp.1-17

Brauer, G.A., 1993, 'Investor Sentiment' and the Closed-End Fund Puzzle: A 7 Percent Solution, Journal of Financial Service Research, 1993, pp. 199-216

Brenan, M.J., Jain, R., 2008, Capital Gains Taxes, Agency Costs, and Closed-End Fund Discounts, EFA 2008 Athens Meetings Paper, http://ssrn.com/abstract=1020210

Canegrati, E., 2008, In Search of Market Index Leader: Evidence from World Financial Markets, Online at http://mpra.ub.uni-muenchen.de/11292/MPRA Paper No. 11292, posted 29. October 2008 / 11:39

Chan, J., Ravi, J., Xia, Y., 2005, Market Segmentation, Liquidity Spillover, and Closed-End Country Fund Discount, www.isb.edu/caf/htmls/YihongXia.pdf

Chang, K., Kot, H.W., Li, D., 2008, Portfolio Concentration and Closed-End Fund Discounts: Evidence form the China Market, Emerging Markets Review, 2008, doi: 10.1016/j.emermar.2008.02.003

Charron, M., 2009, The Closed-End Fund Puzzle: A Survey Review, Forum Empresarial, Vol.14, Num.2 – dicembre 2009, pp.39-57

Cherkes, M., 2001, The Closed-End Funds: A Misunderstood Asset, Columbia University, http://ssrn.com/abstract=687821

Cherkes, M., 2003, A Positive Theory of Closed-End Funds as an Investment Vehicle, www.princeton.edu/~bcf/cherkes.pdf

Cherkes, M., Sagi, J., Stanton, R., 2006, A Liquidity-Based Theory of Closed-End Funds, www2.owen.vanderbilt.edu/jacob.sagi/cefFinal.pdf

De Groot, W., Pnag, J., Swinkels, L., 2010a, The Cross-Section of Stock Returns in Frontier Markets, as available at: www.uch.xeu.es/principal/congresos/2010/forofinanzas/documentor/T1C-1.pdf

DeGroot, W., Pnag, J., Swinkels, L., 2010b, Value and Momentum in Frontier Emerging Markets, available on line at: www.robrco.com/quant

Dima, B., Pirtea, M., Murgea, A., 2004, Informational Asymmetry of SIF's Quotas. An Empirical Approach, The 2nd International Symposium 'Economies and Management of Transition', Timişoara, 7-8 mai 2004, Ed.Mirton, ISBN 973-661-333-x

Doukas, J.A., Milonas, N.T., 2004, Investor Sentiment and the Closed-End Fund Puzzle: Out-of-sample Evidence, European Financial Management, vol.10, no.2, 2004, pp. 235-266

Dragota, V., Caruntu, M., Stoian, A., 2008, An Analysis of Closed-End Puzzle for Emerging Capital Markets, Theoretical and Applied Economics, Volume 10 (527), 2008, pp.53-60, http://store.ectap.ro/articole/340.pdf

Flynn, S.M., 2006, Arbitrage in Closed-End Funds: New Evidence, http://irving.vassar.edu/VCEWP/VCEWP57.pdf

Gemmill, G., Thomas, D.C., 2000, Sentiment, Expenses and Arbitrage in Explaining the Discount on Closed-End Funds, Cass Business School Research Paper, http://ssrn.com/abstract=222448

Gemmill, G., Thomas, D.C., 2004, The Impact of Corporate Governance on Closed-End Funds, http://www.efmaefm.org/efmsympo2005/accepted_papers/Gordon_Gemmill_paper.pdf

Girard, E., Sinha, A., 2008, Risk and Return in the Next Frontier, Journal of Emerging Market Finance, Vol.7, no.1, pp.43-80

Guner, Z.N., Onder, Z., 2009, Investor Sentiment and Closed-End Fund Puzzle in an Emerging Market, Metu Studies in Development, Vol 35 (2009), http://www2.feas.metu.edu.tr/metusd/ojs/index.php/metusd/article/view/294

Horeanu, C., 2009, Brands of the SIFs, Theoretical and Applied Economics, Volume 12 (541), 2009, http://EconPapers.repec.org/RePEc:agr:journl:v:12(541)(supplement):y:2009:i:12(541)(supplement):p:692-695

Ismailescu, I., 2007, Emerging-Market Closed-End Funds: Managerial Performance and Other Factors Affecting Fund Premiums, www.fma.org/Texas/Papers/Emerging-Market_Closed-End_Funds_Iuliana_Ismailescu_FMA2008.pdf

Jindrichovska, I., Rhys, H., 2000, Opening-up of Investment Funds: The Case of the Czech Republic, The University of Wales, School of Management and Business, Research Paper 2000-12, http://www.aber.ac.uk/smba/en/Research/research_papers/2000/rp2000-12.pdf

Jones, S.K., Stroup, M.D., 2010, Closed-End Country Fund Premiums and Economic Freedom, Applied Financial Economics, Volume 20, Issue 21, 2010, pp.1639-1649

Malkiel, B.G., Xu, Y., 2005, The Persistence and Predictability of Closed-End Fund Discounts, http://www-stat.wharton.upenn.edu/~steele/Courses/956/Resource/CEF/MalkielXu.pdf

Manzler, D.L., Slezak, S.L., 2008, The Closed-End Fund Premium Puzzle and Portfolio/Fund Risk Differences, Working Paper Series, http://ssrn.com/abstract=1108489

Nishiotis, G., Markis, A.K., 2006, The Forecasting Power of Emerging Market Closed-End Fund Discounts and Capital Market Segmentation, University of Cyprus, Working Paper Series, http://ssrn.com/abstract=883632

Paun, C., 2006, Modelul Morningstar de evaluare a performantei portofoliilor financiare. Testarea modelului pe SIF-uri, Jurnalul economic, June 2006, pp.70-77

Pop, C., Calugaru, A., Balgaradean, M., 2005, Romanian Closed-end Funds – An Overview, Studia UBB Negotia nr.2/ 2005, pp.107-134

Pop, C., Vamos, C., Craciun, M., Curutiu, C., 2009, Is Bucharest Stock Exchange Influenced by the Five Traded Financial Investment Companies, in Proceedings if the IASK International Conference Global Management, Pedro Soto Acosta (editor), ISBN 978-989-95806-9-5, Seville, Spain, 22-24 June, IASK

Pop, C., Vamos, C., Craciun, M., 2010, Is Bucharest Stock Exchange under the Influence of the Five Traded Financial Investment Companies?, Ekonomsky Vjesnik, God XXIII, No.2/ 2010, pp.355-365

Richard, J.E., Wiggins, J.B., 2000, The Information Content of Closed-end Country Fund Discounts, Financial Services Review 9 (2000), pp.171-181

Rozeff, M. S., 1991, Closed-End Fund Discounts and Premiums, Pacific-Basin Capital Market Research, vol.2, 1991

Speidell, L.S., Krone, A., 2007, The Case for Frontier Equity Markets, The Journal of Investing, Fall 2007, Vol.16. No.3, pp.12-22

Speidell, L.S., 2008, Diversification Snapshot: Frontier Markets in a Troubled World, The Journal of Investing, Winter 2008, Vol.17. No.4, pp.7-10

Speidell, L.S., 2009, Investing in the Unknown and the Unknowable – Behavior Finance in Frontier Markets, Journal of Behavioral Finance, Volume 10, issue 1, pp.1-8

Wermers, R., Wu, Y., Zechner, J., 2007, Portfolio Performance, Discount Dynamics, and the Turnover of Closed-End Fund Managers, http://www.bus.wisc.edu/finance/workshops/documents/Youchang-Wu101207.pdf

Internet sources:

Bucharest Stock Exchange (BVB) various data:
www.bvb.ro

Romanian National Bank various data:
www.bnro.ro

Eurostat:
http://epp.eurostat.ec.europa.eu/portal/page/portal/national_accounts/data/main_tables

FESE (Federation of European Securities Exchanges):
http://www.fese.be/en/?inc=page&id=10

FTSE Index Company
http://www.ftse.com/Indices/Country_Classification/index.jsp

NASDAQ OMX Baltic bulletins:
http://www.nasdaqomxbaltic.com/market/?pg=bulletins&lang=en

Annex 1

SIFs performances compared with BVB as a whole

The following tables will present the evolution of PER and DIVY for the five SIFs and for BVB.

Table 1A. PER[13] for BVB and SIFs (as of December of every year)

	BVB	SIF1	SIF2	SIF3	SIF4	SIF5
1999	**8.8**	2.2	1.9	3.2	2.9	2.2
2000	**3.9**	3.3	3.4	2.9	2.6	3.2
2001	**4.9**	3.5	4.5	4.8	4.1	4.0
2002	**9.1**	6.8	4.6	8.3	8.8	6.3
2003	**13.1**	7.9	6.8	9.8	8.7	6.9
2004	**35.2**	13.2	9.6	16.1	12.5	17.5
2005	**24.1**	33.4	25.5	14.9	32.2	21.5
2006	**18.0**	20.4	47.4	30.4	16.9	21.5
2007	**19.2**	27.6	28.0	24.2	35.8	27.0
2008	**4.1**	2.3	3.3	3.8	3.7	4.2
2009	**14.4**	5.2	4.7	5.1	9.8	3.6
2010	**10.7**	12.7	6.8	24.2	18.8	11.7

Source: BVB monthly reports

As it can be observed in Table 1A, in 2005-2007 SIFs reached their pick from PER point of view when they overpass BVB's PER ratio, while during 2008 the financial crisis effects brought them to the level of 2000-2002. From PER point of view, 2010 marked a comeback of 4 SIFs at the level of 2004-2005.

For 2000 and 2001, DIVY for SIFs can be considered exceptional due to the low level of market prices and a relative high level of paid dividend. SIFs gained reputation as investments that paid regular and consistent dividends. The level of dividend/ share did change significantly over time (as Table 2A shows) due to the increase in SIFs market price. The DIVY high level in 2008 is generated by the price decrease under the influence of the financial crisis. The level of 2009 went back to the level of 2005 due to the increase in SIFs prices, while 2010 shows a comeback to 2004 year level.

SIFs reputation – gained between 2000 and 2003 – as consistent dividend payers - can be considered one of the factors that maintained investors' interest at high levels.

[13] For the calculations above it was used the price of the last trade recorded in the Regular market segment. The net income used to calculate PER is as the last 4 quarters.

Table 2A. DIVY[14] (%) at BVB level and SIFs (as of December of every year)

	BVB	SIF1	SIF2	SIF3	SIF4	SIF5
1999	**7.84**	n/a	n/a	n/a	n/a	n/a
2000	**7.48**	20.97	25.81	22.15	35.90	17.86
2001	**6.70**	19.05	19.46	17.39	17.89	18.10
2002	**4.97**	10.82	12.94	9.14	10.68	11.76
2003	**2.00**	9.30	14.10	8.68	10.67	10.00
2004	**1.45**	5.78	6.81	4.04	7.26	4.25
2005	**0.94**	2.04	2.67	3.10	2.92	2.53
2006	**1.72**	1.53	2.05	1.68	1.03	1.70
2007	**2.18**	1.69	1.81	0	2.90	1.61
2008	**8.57**	12.84	9.43	13.79	11.20	13.33
2009	**2.81**	2.65	3.95	4.41	5.63	4.72
2010	**1.87**	4.93	5.16	5.52	6.21	12.70

Source: BVB monthly reports

In Table 3A below, SIFs returns are compared against the inflation rate, the interest rate for bank deposits and the oldest BVB indices: BET and BET-C. DIVY was ignored, since BET, BET-C and BET-Fi do not include the dividends in their calculations. The rates of return are based on closing values for indices and closing prices for SIFs.

Table 3A. BVB equity market and SIFs performances

	Inflation rate (%)	Average interest rate for bank deposits (%)	BET annual return (%)	BET-C annual return (%)	BET-FI annual return (%)	SIF1 annual return (%)	SIF2 annual return (%)	SIF3 annual return (%)	SIF4 annual return (%)	SIF5 annual return (%)
1999	45.8	45.40	15.21	-4.90	n/a	n/a	n/a	n/a	n/a	n/a
2000	45.7	32.44	18.25	7.39	n/a	57.11	48.83	20.00	-7.27	34.94
2001	34.5	26.16	35.71	-6.47	109.92	90.91	133.33	100.00	132.08	107.14
2002	22.5	18.39	117.52	124.02	113.14	129.32	114.29	107.14	108.66	105.65
2003	15.3	10.78	27.13	22.62	24.72	32.31	10.91	40.32	26.79	9.09
2004	11.9	11.34	93.15	98.29	106.94	84.44	137.71	139.08	58.90	176.19
2005	9.00	8.34	42.47	31.63	151.32	173.74	183.02	82.61	169.29	169.11
2006	6.56	6.51	18.09	25.07	24.66	29.90	37.98	33.04	1.66	28.83
2007	4.84	6.70	16.29	26.27	14.95	0	-1.14	-29.70	21.72	13.16
2008	7.85	9.55	-69.68	-69.68	-83.62	-84.20	-84.18	-88.07	-73.29	-86.20
2009	5.59	11.89	57.20	34.62	83.33	94.83	107.27	135.29	13.60	106.50
2010	6.09	7.29	10.89	13.49	-10.09	-12.58	0.17	-21.79	-11.78	-3.07

Source: BVB data and Romanian National Bank data

[14] For the calculations above it was used the price of the last trade recorded in the Regular market segment. The net income used to calculate DIVY is as the last 4 quarters.

When analyzing the performance of SIFs, one can notice that they generated important returns – above the inflation rate and bank deposits interest rates – between 2001 and 2007. Starting with 2008, the market decline had a higher impact on SIFs due to their increased level of volatility (see table 8) compared to BVB as a whole. From table 7 above it can be concluded that BET-Fi either anticipated or evolved in correlation with BVB represented by BET and BET-C indices.

When SIFs annual returns are considered, it can be noticed a significant growth in share prices between 2000 and 2006. However 2006 shows relative modest results compared to the previous years – mainly due to the abundant media news around the 1% threshold ownership limit and the way this limit was to be applied.

During 2007 – influenced by the news regarding the sub-prime lending crises and real estate market decline in USA – SIFs results were mixed. The sharp decrease in SIFs performances during 2008 was generated by the influence of the international financial crisis. However, 4 out of 5 SIFs recuperated the negative returns they had in 2008 and 2009. 2010 represented for SIFs, the first year of divergent results from BVB; while BVB as a whole registered a (relative) modest positive return, SIFs registered negative returns in 4 symbols and a near to 0 return in one symbol. This situation might be explained by the standby imposed by the Romanian legal regulatory on response to many SIFs investors request to increase the 1% shareholding limit to at least 5%.

STUDIA UBB NEGOTIA, LVII, 2, 2012, pp. 27 - 38
(RECOMMENDED CITATION)

INTEGRATION OF EMPLOYERS' PERCEPTION WITHIN CURRICULUM DEVELOPMENT: A MEASURE TO INCREASE THE EFFECTIVENESS OF CORPORATE GOVERNANCE IN HIGHER EDUCATION

DIANA PITIC[1], MIHAELA DRĂGAN[2], ŞTEFAN LUCIAN PITIC[3]

ABSTRACT. This paper proposes a methodology for increasing the effectiveness of corporate governance in higher education by integrating the perception of employers within curriculum development. In order to develop this methodology, the authors used methods of gathering and integrating the requirements of employers into the program study offer to highlight the groups of subjects which contribute significantly in achieving the competences required by the labor market. Also, the authors conducted a comparative analysis aimed to study the relationship between the number of credits allocated to the main groups of subjects and their relative importance in achieving the required level of skills, all leading to increased market orientation of the study program.

Keywords: groups of subjects, relative importance, side-effects analysis, occupations, competences, comparative analysis

JEL Classification: A11, A12, C88, I21, J24

1. Introduction

The issues of governance in higher education and decisions on curricula have been widely debated in literature. According to Statement 1966 (The American Association of University Professors, 2001: pp.1-2), university decisions should be found mainly in: (1) curriculum topics and related topics such as methods of

[1] Lecturer PhD, Babeş-Bolyai University of Cluj-Napoca, Faculty of Economics and Business Administration, Department of Economics and Business Administration in German language, Teodor Mihali Street 58-60, RO-400591, 0040264-418655-5821, diana.pitic@econ.ubbcluj.ro

[2] Associate Professor PhD, Babeş-Bolyai University of Cluj-Napoca, Faculty of Economics and Business Administration, Department of Economics and Business Administration in German language, Teodor Mihali Street 58-60, RO-400591, 0040264-418655-5821, mihaela.dragan@econ.ubbcluj.ro

[3] PhD Candidate, Technical University of Cluj-Napoca, Romania, Faculty of Machine Building, Department of Design Engineering and Robotics, stefan.pitic@muri.utcluj.ro

teaching and research, (2) aspects of faculty status (employment, layoffs, staff retention, promotion), (3) aspects of student life which have to do with the educational process. On the other hand, Briggs (2002) mentions the phenomenon of resistance from universities regarding the involvement in curriculum development in collaboration with other institutions/organizational forms. The study described by Briggs (2002) shows that rather large universities, with a greater specialization were receptive to the advice of other groups in improving curricula and developing new study programs, or new courses. However, according to the same author, Briggs (2002) there is a wide range (in the U.S.) of procedures to be followed in case of a curriculum design, so that even effective models may differ depending on the context and defined mission. Nevertheless, the view upon universities' involvement in curriculum design evolved over time. According to Birnbaum (2003), at the half of the 19th century universities enjoyed sovereignty in deciding upon curriculum and teaching methods, a paradigm that changed within the 20th century.

At European level, the need to involve other interested parties in the teaching-learning process and correlating university training to long-term employability, has been underlined in following documents: „Communiqué of the meeting of European ministers in charge of higher education in Prague, 2001", „The London Communiqué, 18 May 2007", „Communiqué in Leuven and Louvain-la-Neuve, 28-29 April 2009" and „The Budapest-Vienna Declaration of the European Higher Education Area, 12 March 2010". Studies undertaken at international level (Warraich and Ameen, 2011) regarding employability skills also highlight the importance in involving employers in curriculum development, focusing on feed-back given by employers regarding market oriented skills. Also, Wickramasinghe and Perera (2010) address the necessity in measuring the level of skills when applying for a job, technique that requires involvement not only from the supplier of educational services, but also from employers and students.

Taking into account the preoccupations identified in literature on this topic, the authors propose a methodology for managing the curriculum in order to achieve the integration of graduates into the labor market.

2. Material and Methods

Within this paper the authors compared the relative importance of subjects offered in the curriculum (level of importance which includes employers' feedback on the utility of competence units) and the number of credits assigned to each group of subjects. For making this comparison, it was necessary to determine the utility values of the competence units and the relative importance values for the different subject groups.

For determining the utility values for the competences units, Gemba charts have been developed, that integrate competence units and elements found in occupational standards for four specific occupations in the economical field: accountant (according to SO-Cod COR: 343302), human resources manager (according to Cod COSA: T-229), salesman (according to Cod COSA: O-6) and enterprise assessor (according to Cod COR: 241701). Scales have been defined to determine the importance and frequency of each competence unit and a way of calculating the utility of each competence unit (utility is defined as a product between the degree of importance and the degree of frequency of a competence unit) has been defined. For determining these values, Gemba charts have been filled out by the most important employers of the German Study Line graduates.

The following steps had to be taken in order in order to achieve the research objectives (Opruţa, Drăgan and Dragomir, 2008):

a. Synthesize the utility values obtained for the utility of each competence unit of each of the four mentioned occupations;
b. Analyze curriculum of the study program, identify and group the subjects into subject groups, according to their content;
c. Determine a level of effort (difficulty) related to each group of subjects;
d. Integrate the utility degrees of the competence units contained in the Gemba charts and the level of effort (difficulty) associated with each subject group into the QFD analysis in order achieve correlation;
e. Perform the correlations and extract the side effect analysis;
f. Interpret the side effect analysis;
g. Calculate a global importance level for the groups of subjects;
h. Calculate the relative weight of each group of subjects related to the total number of credits;
i. Conduct a comparative analysis between the global importance of each group of subjects and the number of credits allocated to each group of subjects;
j. Interpret results and estimate potential effects related to the study program.

3. Results and Discussions

Within this research the utility degrees of the competence units are seen as customer requirements, while the technical characteristics of the product/ service are represented by level of effort (difficulty) associated to the groups of subjects within the study program. The utility degree of the competence units have been determined with the help of the employers, and for determining the level of effort associated to a group of subjects the curriculum of the bachelor level the specialization "Economics of the firm", German Study Line, of the Faculty of Economic Sciences and Business Administration within the Babes-Bolyai University has been consulted.

At first, a group of more than sixty subjects has been divided into eleven groups of subjects according to their contents. The number of credits and the number of hours/week for each course and seminar within each group of subjects have been summed and registered according to the specific calculation method of the German Study Line, as seen in table 1, in the column "Equivalent" (Opruţa, Drăgan and Dragomir, 2008).

Table 1. Groups of subjects and its characteristics: number of teaching hours, credits and equivalent hours

Groups of Subjects	ECTS	Course	Seminar	Equivalent
Economics	**32**	**16**	**12**	**27,5**
Micro Economics	6	2	2	4
European Economics	4	2	1	3,25
Macro Economics	5	2	1	3,25
Economics of the Firm	5	2	2	4
World Economics	3	2	1	3,25
Economics Doctrines	3	2	1	3,25
International Economics	3	2	1	3,25
International Economic Transactions	3	2	1	3,25
Social Sciences	**21**	**12**	**6**	**19,5**
Preparing the bachelor thesis	3	0	0	0
Introduction into scientific research methodology	3	2	1	3,25
Economic Sociology	3	2	1	3,25
Political Sciences	3	2	1	3,25
Logic	3	2	1	3,25
Business Ethics	3	2	1	3,25
History of Economics	3	2	1	3,25
…	…	…	…	…

Source: data compilation using „Plan de învăţământ valabil începând din 2010-2011", http://www.econ.ubbcluj.ro/planuri_invatamant/licenta/zi_2010_2011/Economia_Firmei.pdf

For each group of subjects a relative weight has been calculated expressed in percentages, relative to the total hour's amount obtained within the "Equivalent" column (Table 2). As a next step a weight has been defined, so that to the group of subjects that has the highest percentage from the previous calculation is attributed the highest coefficient (in this case the coefficient is 10). The coefficients given to the other groups of subjects are calculated as a product between the percentage of the group of subjects and the maximum coefficient (in this case 10) and divided to the highest percentage (in this case 16.3%). This values have then been rounded up to the next bigger integer number than the obtained value, thus resulting the effort degree associated to each group of subjects.

As a next step the Analytical Hierarchy Process analysis was conducted, and the integration of the utility degree of the competence units into the Quality Function Deployment (QFD) analysis as inputs for the customer requirements

matrix and the customer requirements and effort degree associated to each competence unit as inputs into the technical characteristics matrix was achieved. Correlations between the utility degrees associated to each competence unit and the effort degrees associated to each group of subjects have been established into the correlations matrix.

Table 2. Associated effort degree to each group of subjects

Groups of Subjects	ECTS	Course	Seminar	Equivalent	Percent	Percent /maxim	Effort Degree
Economics	32	16	12	27,5	12,97	7,95	8
Social Sciences	21	21	6	19,5	9,19	5,63	6
Mathematics and statistics	27	11	8	19,75	9,31	5,71	6
Accounting	18	8	5	13,75	6,48	3,97	4
Finances	34	18	11	30,75	14,5	8,89	9
Economical Informatics	16	7	6	13,25	6,25	3,83	4
Marketing	14	10	5	16,25	7,6	4,66	5
Management	38	20	13	34,75	16,3	10	10
Quality Sciences	12	8	4	13	6,13	3,76	4
Law	11	6	4	10,50	4,95	3,03	3
Languages and Communication	20	1	12	13	6,13	3,76	4

A correlation between each occupation selected for analysis (accountant, human resources manager, salesman, enterprise assessor) and each group of subjects has been set.

The contribution of each technical characteristic (in this case group of subjects) for satisfying customer requirements (in this case employer' requirements) is determined mathematically. Let 'a_{ij}' be the number that describes the intersection of the column 'i' with the column 'j' of the correlation matrix of the QFD analysis. Let 'R_i' be the degree of importance of the request 'i' where i=1,…,n so that 'W_j' (absolute) of the characteristic 'j', j=1,…,m is determined as shown below (Crişan, Popescu, Brad, Lemeni, 1999: pp. 72-73):

$$W_j = \sum_{i=1}^{n} R_i \times a_{ij} \quad j=1,\ldots, m \tag{1}$$

The relative value is obtained by applying the formula:

$$W_j^{rel} = \frac{W_j \times 100}{\sum_{t=1}^{m} W_t} \quad j=1,\ldots, m \tag{2}$$

After completing the QFD analysis for all four occupations, a side-effects analysis has been extracted. The side-effects analysis highlights the relative importance of each group of subjects for obtaining the necessary competences useful for practicing one of the selected occupations (the calculation method is shown in formula 2). It must be pointed out that the results of this analysis contain weighted values that include both the utility of every competence unit from the Gemba charts, and the values from the correlations in the correlations matrix from the QFD analysis. Figure 1 shows the side-effect analysis for the occupation of "Accountant".

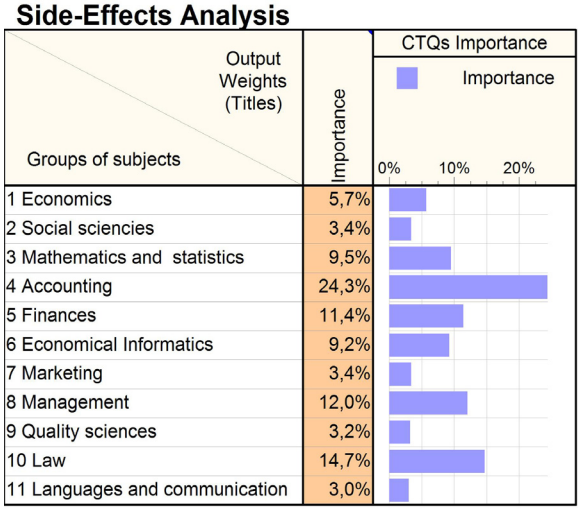


Fig. 1. Side effects analysis for the occupation of "Accountant"

As shown in the side-effect analysis, the "Accounting" group of subjects has the highest importance level followed by "Law", "Management" and "Finances". This can be explained by the fact that a graduate from the specialization "Economics of the firm", that will perform the occupation of accountant, must first know specialized accounting concepts, but must also have legal and financial knowledge. He must also develop his planning, organizing and control skills acquired in the "Management" subjects group. Social skills, communication and teamwork proved to be the least important, with a significance level of only 3.0.

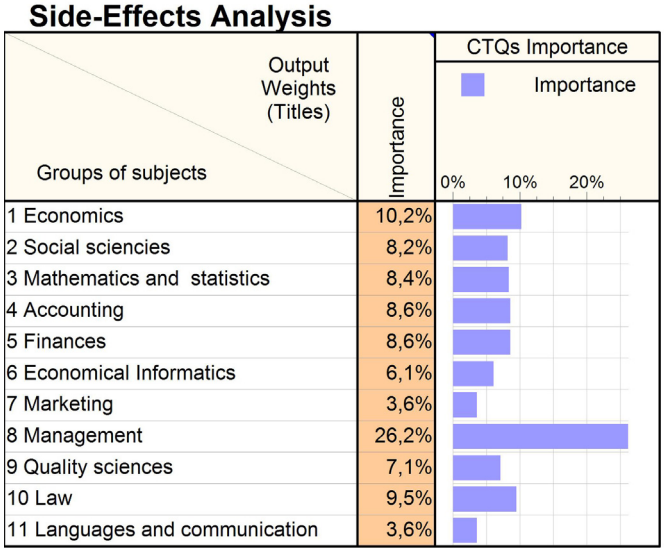


Fig. 2. Side effects analysis for the occupation of "Human Resource Manager"

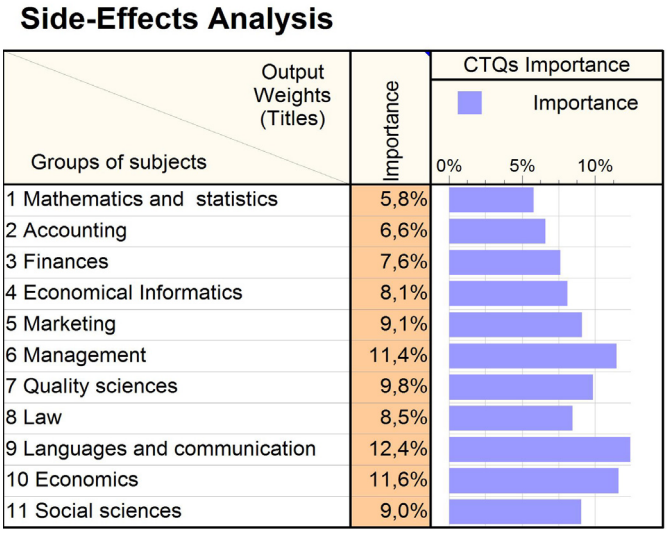


Fig. 3. Side effects analysis for the occupation of "Salesman"

The side-effects analysis for the occupation of "Human resources manager" highlights a high relative importance (26.2%) for the "Management" subjects group, followed by the "Economics" subjects group with 10.2% relative importance, then "Law" subjects group with a relative importance of 9.5%. The subject groups

"Social Sciences", "Mathematics and Statistics", "Accounting" and "Finances" have similar relative importance values, between 8.2% and 8.6%.

The side-effect analysis performed of the occupation of "Salesman" shows that the relative importance for all groups of subjects has relatively close values, so that there are no major discrepancies. It can be concluded that a graduate of "Economics of the firm" will use knowledge acquired from all groups of disciplines in order to successfully fulfill the tasks required for the occupation "Salesman".

A graduate to pursue this occupation (Fig. 4), must have good knowledge of the group of subjects "Accounting," followed by "Law", "Economical Informatics" and "Finance." Also, the group of subjects „Language and communication" has a high importance degree.

Side-Effects Analysis

Output Weights (Titles) / Groups of subjects	Importance	CTQs Importance
		Importance (0% 5% 10%)
1 Economics	7,9%	
2 Social sciencies	7,3%	
3 Mathematics and statistics	5,6%	
4 Accounting	14,9%	
5 Finances	10,7%	
6 Economical Informatics	10,8%	
7 Marketing	8,9%	
8 Management	7,7%	
9 Quality sciences	5,9%	
10 Law	11,2%	
11 Languages and communication	9,1%	

Fig. 4. Side-effects analysis for the occupation of "Enterprise assessor"

As a next step, a general analysis of the relative importance degrees obtained in the four side-effect analyses was considered to be appropriate for this study. An arithmetic mean of the values obtained for each group of subjects was calculated, as shown in figure 5.

Thus, we can see that following groups of subjects are the most important in the formation of a graduate of economics, specialization "Economics of the firm": "Management", "Accounting", and "Law". Of course, this analysis included only four occupations specific to this specialization, the introduction of other occupations in the analysis may lead to changes in establishing the global importance level. However, the selected occupations in this analysis are considered to be the most suitable and most likely to perform by a graduate of this specialization.

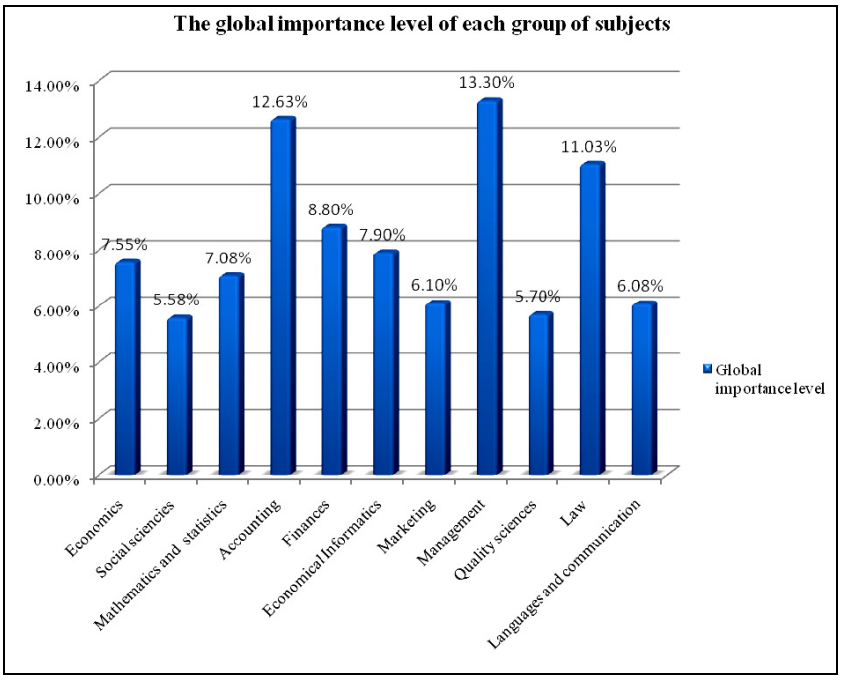


Fig. 5. The global importance level of each group of subjects

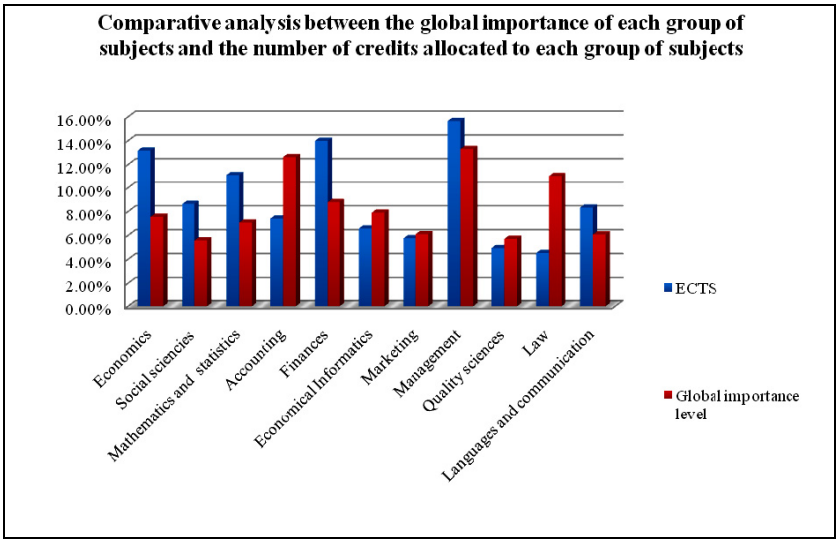


Fig. 6. Comparative analysis between the global importance of each group of subjects and the number of credits allocated to each group of subjects

In order to conduct the comparative analysis of the number of credits allocated to groups of subjects and their overall level of significance, the authors calculated the relative weight of each group of subjects related to the total number of credits (ECTS).

The comparative analysis highlights the existence of three situations:

- Groups of subjects whose global importance level is higher than the number of credits allocated (Accounting, Economical Informatics, Quality Sciences, Law);
- Groups of subjects whose global level of importance is much lower than the number of credits allocated (Economics, Social Sciences, Mathematics and Statistics, Finances, Management, Languages and Communication);
- A group of subjects whose global importance level is approximately equal to the number of credits (Marketing).

Given these considerations, it can be stated that rethinking the study program offer in terms of number of credits allocated for the disciplines that build up the specialization "Economics of the firm" could be taken into consideration. Thus, to faithfully reflect the contribution of these groups of subjects in the training of graduates, that pursue occupations mentioned in this research, a redistribution of the number of credits could be taken into consideration. An increase of credits for the groups of disciplines: "Accounting", "Economical Informatics", "Quality Sciences", "Law"; maintaining the same level for the group "Marketing" and a resize of the credits for the second category.

4. Conclusions

The research described in this paper highlights the need for market orientation of study programs. Also, the authors have provided a methodology for integrating the requirements of employers into the program study offer, focusing on four occupations specific for a graduate in economics, specializing in "Economics of the firm".

The performed analysis were not limited to highlight the relative importance degrees of the groups of subjects in the curriculum in obtaining the necessary skills of graduates for their integration into the labor market, but were extended including a comparison of the relative degrees of importance and relative weight of number of credits for each group of subjects. Thus, the authors highlighted the main directions of market orientation of the curricula reviewed in this paper, but also for study program offers in general.

To increase the effectiveness of governance in higher education, the authors propose to increase the collaboration of study programs with other organizations/ institutions to meet the needs and requirements of all stakeholders and shareholders.

Acknowledgements

This work was supported from the European Social Fund through Sectoral Operational Program Human Resources Development 2007-2013, project number POSDRU/89/1.5/S/59184 „Performance and excellence in postdoctoral research in Romanian economics science domain".

REFERENCES

Birnbaum R. (2003), *The end of shared governance: looking ahead or looking back*.

Briggs C.L. (2002), *Models of curriculum governance: a research agenda*.

Crişan L., Popescu S., Brad S., Lemeni L. (1999), *Tehnici şi metode ale managementului calităţii*, Editura Casa Cărţii de Ştiinţă, Cluj-Napoca.

Opruţa D., Drăgan M., Dragomir M. (2008), "Method of competitive development applied in the orientation towards the market requirements of a study program". *Proceedings of the 5th International Conference of Quality Management in Higher Education,* Editura Performantica, 12-14 June, Tulcea, Romania, pp. 565-570, ISBN: 978-973-730-496-4. Opruţa D., Drăgan M., Popescu S., (2008), "Technique for identifying competences necessary for the orientation of study programs towards occupational requirements", *Proceedings of the 5th International Conference of Quality Management in Higher Education*, Editura Performantica, 12-14 June, Tulcea, Romania, pp. 45-50, ISBN: 978-973-730-496-4.

Popescu S., Stanciu T., Dragomir M. (2009), "Quality in the extended lifecycle of educational projects", Rusu Costache (Ed.), *The Proceedings of the 6th International Conference on the Management of Technological Changes*, Alexandroupolis, Greece, 3rd-5th September 2009, Eds. Costache Rusu, pp.327-329, Vol.2

Warraich N.F., Ameen K., Employability skills of LIS graduates in Pakistan: needs and expectations, *Library Management*, (2011), Vol. 32, No.3, Emerald Group Publishing Limited

Wickramasinghe V., Perera L. (2010), Graduates', university lecturers' and employers' perception towards employability skills, *Education+Training*, Vol.52, No.3, Emerald Group Publishing Limited

Communiqué of the Conference of European Ministers Responsible for Higher Education, Leuven and Louvain-la-Neuve, 28-29 April 2009, available at: http://www.ehea.info/Uploads/Introduction/Leuven_Louvain-laNeuve_Communiqu%C3%A9_April_2009.pdf (Accessed on May 2011).

Curriculum Hauptstudium, Internationale Wirtschaftsbeziehungen, Betriebswirtschaft, 2010-2011, http://www.econ.ubbcluj.ro/Linia_Germana/2010/2_3_Curriculum_Hauptstudium.pdf (Accessed on June 2011).

"London Communiqué. Towards the European Higher Education Area: responding to changes in a globalized world, 18 May 2007", available at: http://www.ehea.info/Uploads/Introduction/London_Communique18May2007.pdf (Accessed on May 2011).

Plan de învăţământ valabil începând din 2010-2011, available at: http://www.econ.ubbcluj.ro/planuri_invatamant/licenta/zi_2010_2011/Economia_Firmei.pdf (Accessed on June 2011).

Standard ocupaţional. (1997) Ocupaţia: Agent comercial. Domeniul: Comerţ şi servicii, Cod COSA O-6.

Standard ocupaţional. (2000) Ocupaţia: Manager resurse umane. Domeniul: Administraţie şi management, Cod COSA: T-229.

Standard ocupaţional. (2004) Ocupaţia: Contabil. Domeniul: Administraţie şi management, Cod COR: 343302.

Standard ocupaţional. (2005) Ocupaţia: Expert evaluator de întreprinderi. Domeniul: activităţi financiare, bancare, de asigurări, Cod COR: 241701.

The American Association of University Professors, (2001), available at: http://web.utk.edu/~senate/Form1.pdf.

The Budapest-Vienna Declaration of the European Higher Education Area, 12 March 2010, available at: http://www.ehea.info/Uploads/Declarations/Budapest-Vienna_Declaration.pdf (Accessed on May 2011).

The report of the Conference of Ministers in charge of Higher Education, Prague, 2000, available at: http://www.ehea.info/Uploads/Declarations/PRAGUE_COMMUNIQUE.pdf1(Accessed on May 2011).

STUDIA UBB NEGOTIA, LVII, 2, 2012, pp. 39 - 53
(RECOMMENDED CITATION)

MEASURING INNOVATION POTENTIAL AT SME LEVEL WITH A NEUROFUZZY HYBRID MODEL

RICHARD KASA[1]

ABSTRACT. Measuring innovation has become a crucial issue of today's economical and political decision makers. In a remarkably short time, economic globalisation has changed the world's economic order, bringing new challenges and opportunities to SMEs. Companies cannot compete in this new environment unless it becomes more innovative and responds more effectively to consumers' needs and preferences – says the EU's innovation strategy. Decision makers cannot make right and efficient decisions without knowing the capability for innovation of companies of a sector or a region. This need is forcing economists to develop an integrated, unified and complete method of measuring, approximating and even forecast the innovation performance not only on macro level but also on micro level.

In this article I intended to show that the recent methods of measuring innovation potential are obsolete, marginally used and have weak statistical performance and effectiveness. Why? Because the world has changed! There are new requirements for social and economical modelling and building expert systems, we have enormous amount of data in a stochastic reality and even the nature of data has been changed. This is especially true in the field of management. Innovation has a so plastic and ductile concept system that it cannot be measured and described (ad absurdum forecasted) by classical crisp methods. It requires soft and intelligent methods. In the article I will show my alternative for measuring innovation potential with a new method which is accurate, strict and significant at the same time, plastic and stable at the same time and simultaneously can handle linguistic variables and blurred (fuzzy) variables. This model possesses efficient studying, adaptive responding, right decision making, information granulation and lingual communication. Via these issues problem solving, pattern recognition, linguistic procession, system design and effective forecasting and estimating can be reached.

Key words: innovation potential, neural network, fuzzy logic, measurement

JEL Classification: C45, C51, O32, O47

[1] Dr., University of Miskolc, Institute of Management Sciences, kasa.richard@uni-miskolc.hu

1. Introduction and Review of Literature – Recent Methods of Measuring Innovation

Recent methods of measuring, forecasting or even estimating innovation performance show a rather poor picture. The most widespread (however, the simplest and statistically most doubtful) is simple index numbers based on a survey or on national statistical data service. Variables mostly based on simple abstraction of the individual factors that affect innovation or context-dependent abstraction of the specific factors affect on innovation. These methods can only describe simple innovation processes. Another large group of methods are based on some regression models. These are individual or composite abstractions.

2. Material and Methods

In my research the positivist paradigm plays the main role of the specific coherent practices of the standards of academic pragmatics (laws, theories, adaptations, tools of researches, models). This is accounted for by the peculiarity of the subject, on the other part the predominance of available positivist literature against the interpretative.

The positivist approximation can be decolonized from any ethical considerations, normative verdicts (Friedman 1953): according to Keynes it deals with what exists and not what must exist. This approach contains a system of generalizations which makes possible to describe correctly the effects of the environmental changes with such performance which depends exclusively on accuracy, scope and correspondence with the facts of the prognosis - creating an objective system like they occur in natural science (Friedman 1953). According to the positivists a theory which is unable to describe reality with numbers is inappropriate and not well reasoned (McCloskey 1986). The goal of science for the positivist research workers is to reveal the scientific regularities whereby the phenomena under investigation will be explicable and at the same time predictable (Alvesson 2000). The goal of research is to reveal the objective verity with the collation of the effects of the research worker's personality, the chosen research method and the influential factors (McCloskey 1986). Hence the analytic confines of the research is predefined and universal, the analytic model is class-based (problem granulation), the process of the research is convergent, logically traceable an objective. According to Friedman's theory (1953) the positivist science is just as objective (or transposable) as any other natural sciences. Nevertheless the fact that social sciences deal with connections between people and organizations, the researcher oneself is a part of the research - in a more direct way than in natural sciences - makes significantly difficult to reach objectivity.

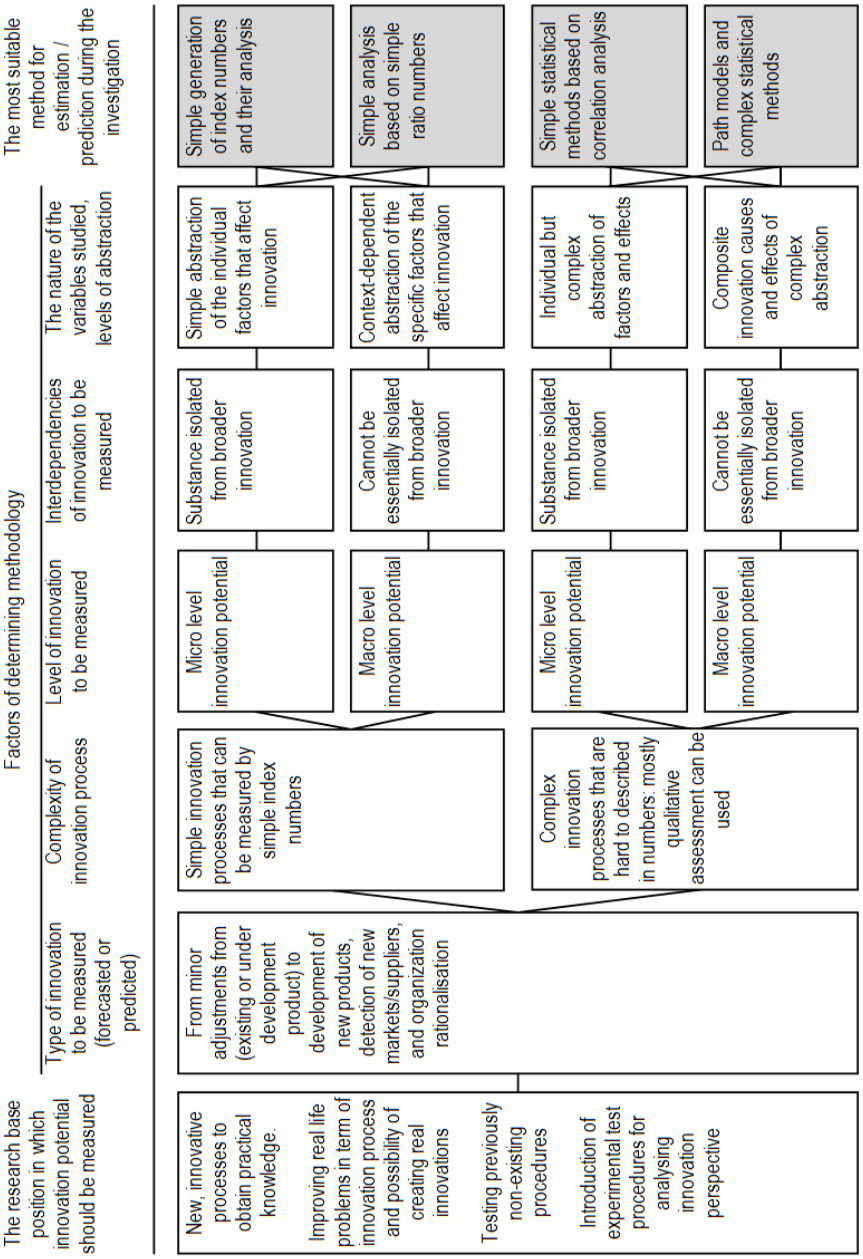


Fig. 1: Classical methods of measuring innovation

Source: Own Ed.

Accordingly there are two potential ways offering themselves. One of them is loosening the objectivity postulations set up by positivism. This way it can be reasonable to consider how much is the greatest permissible subjectivity which is still able to grant the objectivity of the natural scientific positivist approach.

The other available way is to prepare the applied methodology to cope with handling "fuzzy", subjective, often inaccurate and noisy dataset by objective, solid mathematical laws.

And the research worker must choose from the two possible ways, hence according to Friedman's to this very day still standing thesis (1953) every economical deduction necessarily - even genuinely or impliedly - is based on a positivist prediction telling us the consequences of doing rather this instead of that: providing information about the consequences of a given series of actions and not determining normative verdicts.

In the course of my research I will choose the second way: try to set up such modeling methodology into economics which based on the positivism's logical basics is able to take into the object of research also subjective and inert factors beside the expected objectivity (without yielding it). These factors are either forced to be precise (along with a high bias) by the classic methodologies or easing the positivist objectivism.

Natural sciences as positivist sciences contain conditionally approved, generalizations related to social/economical phenomena. With these generalizations the effects of variations which occur in the case maps can be predicted. The extension of generalization, the accuracy of approximations, the confidence level of them and the enhancement of the predictions' accuracy are discouraged not only by the boundaries of the researcher's all-time capabilities, but such circumstances as well which occur vigorously in social sciences, especially in economics - however this is not their obligate idiosyncrasy (Friedman 1953). In economics inevitably we better rely on non-controlled experiences than on controlled experiments, hence it is exceptionally hard to provide clear and unambiguous evidence to verify hypothesizes correctly.

A hypothesis can only be tested with its conclusions, predictions and realism whether it can be verified or not. This is what disturbs our methodological principles, making difficulties in testing hypothesizes and verifying them. Ergo the social scientist has to be fully aware of his methodological principles, more than others and must strictly stick to their restrictive case maps, not allowing rejecting each or more of them. In this manner a social scientist has to adapt to those few of the deductible conclusions.

Considering the above being fully aware of restrictive assumptions is elementary during the phase when we are building our model. It is also indispensable to have the wide knowledge about techniques of testing the restrictive assumptions, being familiar with the standard system of requirements of social science's models.

The essential requirements of modelling in social sciences - just like in mathematics - are accuracy, significance and strictness. The consistency originates in that tract of the science philosophy of mathematics in the XIX century which is called the "Revolution of strictness". The naming originates itself from Imre Lakatos, Hungarian mathematics and science philosopher (positive heuristics, the critique of naive falsificationism). Since that time we know the very precise and exact standardization which was taken over into the classic (hard) modeling of social science. Herewith arithmetization and standardization of modeling has been started. During arithmetization it was tried to reconduct the elusive terms of analysis and the theory of real numbers to the certain conception of natural numbers. Standardization meant the method of strict verification analysis.

The second group of requirements was conceived by Lotfi Zadeh - professor of mathematics at Berkeley University - in his "Fuzzy systems" theory. The first paradox states that increasing the complexity of a model (system) causes the decrease of the ability to make precise and significant conclusions. Moreover at a margin we realize that exactitude (arithmetical formalism) and significance became two criteria of the system which are respectively baring out each other.

The stability/plasticity dilemma means also a similar problem: how could we build such a model which is plastic enough to bear with its fast changing environment but at the same time it is also stable enough to reserve the previously acquired knowledge (coherence).

Similar contradiction turns up in case of interpretability - exactitude and interpretability - significance concept pairs.

By the end of the 20th century the conventional system modeling techniques are more and more crowded out from scientific modeling by methods based on symbolic systems and artificial intelligence. These methods were used in same context with such expressions like interpretation and arguing by the end of the 90's. It was realized that systems based on these principles proved themselves to be efficient in solving such problems which could not be solved at all or only with defining lots of notations by traditional techniques like: analysis, statistics, precise and deterministic techniques of decision support and regulation, linear programming which can be perfect when dealing with simple problems. In more complicated cases certainly I mean the non-linear or dynamic programming techniques. The case maps of these techniques are increasingly insatiable. Let us take the simple regression model where the basic notation is the linearity of the variables and the disallowance of multicollinearity. However thinking through how hard it is to measure up to these expectations in such world where everything is coherent, connected: it is hard to identify every single effect and cause, making a big distinction between them.

Thus in very few cases the traditional techniques are not reliable and also not sure to be used. A problem can happen to be so complicated that we simply cannot formulate the function which is to be analyzed to find its optimum.

It can also happen that the analysis could not provide a satisfying result, we get high statistical error with low significance level or we can only draw heuristic, approximate conclusions.

"Artificial intelligence based systems" is an umbrella term of such techniques and tools which handle problem solution by the human brain's functional analogies. The word "intelligence" alludes to the ability of efficient studying, adaptive response, making right decisions and the sophisticated way of lingual communication and comprehension. Hereby such models can be created which simulate the functioning of living organisms even the human brain's. These systems will be exceedingly appropriate for problem solution, pattern recognition, lingual processing, designing and forecasting more effectively and with less restrictions than the traditional models.

The usage of neural networks are rather widespread in the field of technical and information sciences by the end of the 20th century. Essential works of this topic are written by Rumelhart - McClelland in 1986, Kohonen in 1982, 1988, 1990, 1993, Kasabov in 1996, Koska in 1992, and Zurada also in 1992. Within the Hungarian authors Retter (1998) and Borgulya (1998) represent an international standard with their works.

Those, that were not possible in logical traditions so far, are made possible using fuzzy logic: building calculi on unclear definitions, such as „a little bit more", „least hot", „it will rain unlikely" or even „a bit more variable than the average". In classical logic, characteristic functions of hard sets can admit only two values depending on whether the element is member of the set or not: the statements must be formed to true or false, thus they must be reduced (otherwise they are beyond control), which obviously returns in a large loss of information. On the contrary, the degree of membership of the elements in a fuzzy set varies, and this degree can be described with a continuously changing membership function (so not with a discrete characteristic function) between full membership and non-membership. There are several other reasons support the fuzzy model. Firstly, the recognition that the world is neither „hard" [edged] nor precise, but indefinitive, fuzzy (Borgulya, 1998). Thus, assuming that this indefinitive and stochastic world can be described with hard models may be absurd. Second is the purposefulness: only a fuzzy system can transform the expert knowledge into mathematical formulas. Third is the force: the fuzzy approach is generally more advantageous in estimating ever more complicated nonlinear systems with ever increasing parameters. Lastly, the most important is its simplicity. Only fuzzy systems are capable to granule the information. This means that we can dissolve curves consisted of numerous points into approximate part-ranges, so approximation becomes simpler and cheaper (Retter 1998)

With single neurons and single layer networks even social science models may become able to learn from its environment, or improve its abilities through learning. While the approximate functions of the traditional statistical models

can be seen in an explicit way, in the neural system approach it can be seen implicitly: using input and output samples. Learning means the improvement of an ability of the network by adapting and modifying its free parameters – weight and structure – caused by stimuli from the interactions of the environment in which the network is embedded. It is a process that forces a network to change its weights and/or structure to choose a particular output or provide an output sample for a specified input or input sample, maps an input vector field into an output vector field (Kasabov 1996).

3. Results and Discussion

Modelling issues and performance objectives

Researchers tend to say that a model is not needed to develop a fuzzy controller, and this is the main advantage of the approach. However, will a proper understanding of the plant dynamics be obtained without trying to use first principles of physics to develop a mathematical model? And will a proper understanding of how to control the plant be obtained without simulation-based evaluations that also need a model? We always know roughly what process we are controlling (e.g., we know whether it is a vehicle or a nuclear reactor or a social model), and it is often possible to produce at least an approximate model. (Passino-Yurkovich, 1998) For a safety-critical application, if not a formal model is used, it is not possible to perform mathematical analysis or simulation-based evaluations. Is it wise to ignore these analytical approaches for such applications? Clearly, there will be some applications where you can simply "hack" together a controller, even fuzzy or conventional and go directly to implementation. In such a situation there is no need for a formal model of the process; however, is this type of control problem really so challenging that fuzzy control is even needed. Basically, the role of modeling in fuzzy control design is quite similar to its role in conventional control system design. In fuzzy control there is a more significant emphasis on the use of heuristics, but in many control approaches (e.g., PID control for process control) there is a similar emphasis. (Passino-Yurkovich, 1998) Basically, in fuzzy control there is a focus on the use of rules to represent how to control the plant rather than ordinary differential equations (ODE). This approach can offer some advantages in that the representation of knowledge in rules seems more lucid and natural to some people. For others, though, the use of differential equations is more clear and natural. Basically, there is simply a "language difference" between fuzzy and conventional control: ODEs are the language of conventional control, and rules are the language of fuzzy control. (Passino-Yurkovich, 1998)

Design of Controller module

According to Passino-Yurkovich fuzzy control system design essentially amounts to

- choosing the fuzzy controller inputs and outputs
- choosing the pre-processing that is needed for the controller inputs and possibly post-processing that is needed for the outputs
- designing each of the four components of the fuzzy controller

The fuzzy rule base is a central component of the fuzzy controller and it represents the “intelligence” in the fuzzy control algorithm. The rule-base is constructed so that it represents a human expert "in-the-loop." The information that we load into the rules in the rule-base may come from some human expert (this is the place where the designer’s knowledge and experience must be correctly interpreted and organized into an appropriate set of rules). In some situations when there is no such human expert with many experiment, the control engineer will simply study the problem (perhaps using modeling and simulation) and write down a set of control rules that makes sense.

As an example, in the cruise control problem discussed above it is clear that anyone who has experience driving a car can practice regulating the speed about a desired set-point and load this information into a rule-base. For instance, one rule that a human driver may use is "If the speed is lower than the set-point, then press down further on the accelerator pedal." (Passino-Yurkovich, 1998) Every fuzzy rule can be divided into an antecedent part (IF...) and a consequent part (THEN...), with antecedent parts describing causes and consequent parts describing consequences relevant for control action. (Bouslama-Ichikawa, 1992). A rule that would represent even more detailed information about how to regulate the speed would be "If the speed is lower than the set-point AND the speed is approaching the set-point very fast, then release the accelerator pedal by a small amount". This second rule characterizes our knowledge about how to make sure that we do not overshoot our desired goal (the set-point speed). Generally speaking, if we load very detailed expertise into the rule-base, we enhance our chances of obtaining better performance. (Passino-Yurkovich, 1998)

Performance Evaluation

The basic reason for this is that a fuzzy controller is a nonlinear controller – so many conventional modelling, analysis (via mathematics, simulation, or experimentation), and design ideas apply directly. (Passino-Yurkovich, 1998) Since fuzzy control is a relatively new technology, it is often quite important to determine what value it has relative to conventional methods. Unfortunately, few have performed detailed comparative analyses between conventional and

intelligent control that have taken into account a wide array of available conventional methods (linear, nonlinear, adaptive, etc.); fuzzy control methods (direct, adaptive, supervisory); theoretical, simulation, and experimental analyses; computational issues; and so on. Moreover, most work in fuzzy control to date has focused only on its advantages and has not taken a critical look at what possible disadvantages there could be to using it (hence the reader should be cautioned about this when reading the literature). For example, the following questions are cause for concern when you employ a strategy of gathering heuristic control knowledge.

- Will the behaviors that are observed by a human expert and used to construct the fuzzy controller include all situations that can occur due to disturbances, noise, or plant parameter variations?
- Can the human expert realistically and reliably foresee problems that could arise from closed-loop system instabilities or limit cycles?
- Will the human expert be able to effectively incorporate stability criteria and performance objectives (e.g., rise-time, overshoot, and tracking specifications) into a rule-base to ensure that reliable operation can be obtained? (Passino-Yurkovich, 1998)

These questions may seem even more troublesome (1) if the control problem involves a safety-critical environment where the failure of the control system to meet performance objectives could lead to loss of human life or an environmental disaster, or (2) if the human expert's knowledge implemented in the fuzzy controller is somewhat inferior to that of the very experienced specialist we would expect to design the control system (different designers have different levels of expertise). Clearly, then, for some applications there is a need for a methodology to develop, implement, and evaluate fuzzy controllers to ensure that they are reliable in meeting their performance specifications. (Passino-Yurkovich, 1998)

Architecture of fuzzy model

The architecture of my fuzzy controller or fuzzy logic controller (FLC) is shown below as a block diagram. This model is composed of four main elements:

- A fuzzy rule base (a set of IF-THEN rules) which has a fuzzy logic quantification of the expert's linguistic description of how to achieve a good control. It contains the knowledge in the form of a set or rules.
- An inference mechanism or inference engine (fuzzy inference module) which emulates the expert's judgment making in interpreting and applying knowledge about how to make predictions in desired fields.

- A fuzzification interface, which converts controller inputs into information that the inference mechanism can easily use to activate and apply rules.
- A defuzzification interface, which converts the conclusions of the interference mechanism into actual inputs of the process.

Basically we should view the fuzzy controller as an artificial decision maker that operates in a closed-loop system in real time. It gathers output data $y(t)$, compares it to the reference input $r(t)$ and then decides what the plant input $u(t)$ should be to ensure that the performance objectives will be met. (Passino-Yurkovich, 1998) To design the fuzzy controller, information must be gathered on how the artificial decision maker should act in the closed-loop system. Sometimes this information can come from a human decision maker who performs the control task, while at other times the control engineer can come to understand the dynamics of the system and write a set of rules about the forecast without outside help. These rules basically say "IF the innovation output and reference input are behaving in a certain manner, THEN the input should be some value" as mentioned above. A whole set of such "IF-THEN" rules is loaded into the rule-base, and an inference strategy is chosen, then the system is ready to be tested to see if the closed-loop specifications are met. (Passino-Yurkovich, 1998)

Fuzzy sets are used to quantify the information in the rule base, and the inference mechanism operates on fuzzy sets to produce fuzzy sets, so it must be specified, how the fuzzy system will convert its numeric inputs into linguistic outputs.

Let x (X be a linguistic variable and $T_i(x)$) be a fuzzy set associated with a linguistic value T_i. The conversion of a physical (numerical) value of x into a corresponding linguistic value by associating a membership degree, $x \rightarrow \mu T_i\,(x)$ is called fuzzification. The membership degree $\mu T_i\,(x)$ represents the fuzzy equivalent of the value of x. (Kovacic-Bogdan, 2006)

The inference mechanism has two basic tasks:

- determining the extent to which each rule is relevant to the current situation as characterized by the inputs u_i, $i = 1, 2, \ldots, n$ (this is task "matching")
- drawing conclusions using the current inputs ui and the information in the rule-base (we call this task an "inference step"). For matching note that $A_{j1} \times A_{k2} \times \cdots \times A_{ln}$ is the fuzzy set representing the premise of the ith rule $(j, k, \ldots, l; p, q)i$ (there may be more than one such rule with this premise). (Passino-Yurkovich, 1998)

The result of fuzzy inference is a fuzzy output set. On the other hand, every control task will imply the existence of crisp value at the fuzzy controller output. The procedure which extracts crisp output value from a fuzzy output set is called defuzzification.

Architecture of neural network

The neural network model is based on the following parameters which describe a neuron as shown on figure 2:

- Input connections (or inputs): $x_1, x_2, \dots, x_n$. There are weights bound to the input connections: $w_1, w_2, \dots, w_n$; one input to the neuron, called a bias, has a constant value of 1 and is usually represented as a separate input, say x_0.
- Input function f, calculates the aggregated net input signal to the neuron $u = f(x, w)$, where x and w are the input and weight vectors correspondingly; f is usually the summation function:
- An activation (signal) function s calculates the activation level of the neuron $a = s(u)$.
- An output function calculates the output signal value emitted through the output (the axon) of the neuron: $o = g(a)$; the output signal is usually assumed to be equal to the activation level of the neuron, that is, $o = a$. (Kasabov, 1998)

An artificial neural network (or simply neural network) is a computational model defined by four parameters:

- Type of neurons (also called nodes, as a neural network resembles a graph)
- Connectionist architecture—the organization of the connections between neurons
- Learning algorithm
- Recall algorithm

The functioning of the neural network, when an input vector x is supplied, can be viewed as a mapping function $F: X \rightarrow Y$, where X is the input state space (domain) and Y is the output state space (range) of the network. The network simply maps input vectors $x \in X$ into output vectors $y \in Y$ through the ''filter" of the weights, that is, $y = F(x = s(W, x))$, where W is the connection weight matrix. The functioning of a network is usually based on vector-matrix real-number calculations. The weight matrix represents the "knowledge", the long-term memory, of the system, while the activation of the neurons represents the current state, the short-term memory.

The most attractive characteristic of neural networks is their ability to learn. Learning makes possible modification of behaviour in response to the environment. A neural network is trained so that application of a set X of input vectors produces the desired (or at least a consistent) set of output vectors Y, or the network learns about internal characteristics and structures of data from a set X. The set X used for training a network is called a training set. The elements x of this set X are called training examples. The training process is

reflected in changing the connection weights of the network. During training, the network weights should gradually converge to values such that each input vector *x* from the set training data causes a desired output vector y produced by the network. Learning occurs if after supplying a training example, a change in at least one synaptic weight takes place. (Kasabov, 1998)

The training examples comprise input vectors x_i and the desired output vectors o_i. Training is performed until the neural network "learns" to associate each x_i input vector to its corresponding and desired output vector o_i. For example, a neural network can learn to approximate a function *y=f(x)* represented by a set of training examples (*x, y*). It encodes the examples in its internal structure.

Hybrid modelling

The combined fuzzy-neuro system uses the advantages of both fuzzy model and neural network model. The output from the controlled process of the fuzzy controller is the input of the supervised neural network through the system's error detection mechanism.

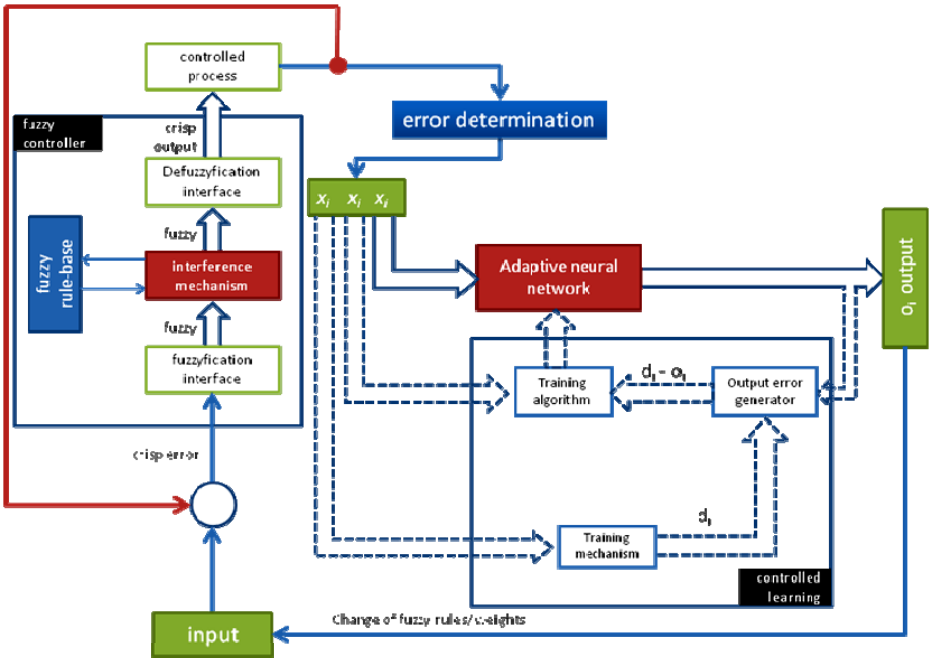


Fig. 2: Block diagram of hybrid system (authors own edition)

Source: Own Ed.

At the same time, the outputs of the neural network are the crisp inputs of the fuzzy controller. These inputs are modified by the feedback mechanism. In this sense there are two circles of the model: one for the neurofuzzy forecasting process mechanism, which produces outputs for the model, and the other feedback circle, intended to reduce the statistical errors of the weights of the neural network.

Fuzzy variables of hybrid model

For measuring the innovation performance of a certain region or an industry or even a company, I have prepared my own survey. When defining the variables of the model I separate them into two groups: on the one part the explanatory variables whereby we estimate and on the other hand the dependent (explained) variable which is estimated by the model. Each and every variable is a result of aggregation by factor analysis. The setup of each factor is done by the following variables:

F1a	Motivation	Creativity inspiration, Remuneration, Change seeking, Change adaptation	F1a-F1d: Organization
F1b	Socialization	Group work, Innovation culture, Competitiveness, Communication, Ratio of experts, Age	
F1c	Action	Researches, Wide range of products, Modern products, improving quality, Adaptation of modern/efficient processes, Stepping to new markets, Increasing market share, Achieving higher elasticity in production, Improving work safety, Lowering the specific labor cost, Lowering the specific material cost, Meeting the rules, fulfilling standards	
F1d	Adaptation	Problem solving, Brainstorming, Assimilation with tasks	
F2	Strategy	Long term company strategy, Market improvement strategy, Product improvement strategy, Innovation strategy, Reputation of strategies, Assimilation of strategies, Fitting of strategies	

F3	Diffusion	Company inside the group, Suppliers, Customers, Competitors, External experts, research centers, Universities, Outsourcing, Expositions, Conferences, Patent examination
F4	Information	Efficiency of information, Effectiveness of information, Controlling, IT, Commercial sources, Marketing, Market leverage effect
F5	Resources	Revenue, R & D expenses, Human resources, Creativity, Value added
F6	Technology	Modernity, Incidence, Efficiency, Monitoring, Pushing effect, Adaptation of technologies, Supplier companies, Production-intensive company, Research-intensive company
F7: Y	Achievements	Amount of released publications, Number of protected patents, Number of know-hows, licenses, Marketization, Number of company innovations, Commitment, Competitiveness

4. Conclusions

Hereby I schemed the reasonableness of necessarity of a neuralized fuzzy system in aspect of positivist scientific theory. I presented the procedure of building the system and the particularities of its operation. I have also defined the variables which can be used to estimate effectively the innovation potential at company level.

Although the data of the primary research are just being evaluated - so I cannot provide any consequences about the functioning of the model at this stage - but it is clear by now that the model is appropriate for solving scientific theoretical and methodological problems, thus describing reality more precisely.

REFERENCES

Alvesson, M. „T*he Local and the Grandiose - Method, Micro and Macro in Comparative Studies of culture and Organizations.*" In Embeddedness and Corporate Change in a Global Economy, szerző: Tzeng R. & Uzzi B., 11-46. New York: Peter Lang Publishing, 2000.

Borgulya, István. *Neurális hálók és fuzzy rendszerek.* Budapest-Pécs: Dialóg Campus Kiadó, 1998.

Boussabaine, A.H. és T. Elhag. *„A Neural Network approach for forecasting Cost-Flow for water industry projects*." Journal of Engineering, Construction and Architectural Management 6(3), 1999: 213-224.

Friedman, Milton. „The Methodology of Positive Economics." *Essays on Posotive Economics*, 1953: 3-43.

Futó, Iván. *Mesterséges inteligencia.* Budapest: Aula Kiadó, 1999.

Kasabov, Nikola K. *Foundations of Neural Networks, Fuzzy Systems and Knowledge Engineerring.* Massachusetts: A Bradford Book, MIT Press, 1998.

Kohonen, T. „Self-organized formation of topologicall collect feature maps." *Biological Cybernetics, 43*, 1982: 59-69.

Kohonen, T. „The self-organizing map." *Proceedings of IEEE Transactions 78*, 1990: 1464-1480.

Kohonen, T. „Physiological interpretation of the self-organizing map algorithm." *Neural Networks 6*, 1993: 895-905.

Kohonen, T. *Self-Organization and Associative Memory.* New York: Springer-Verlag, 1988.

Kovacic, Z. & Bogdan, S. (2006). *Fuzzy Controller Design: Theory and Application*. Taylor & Francis Group: CRC Press.

Kosko, B. „Fuzzy associative memories." In *Fuzzy expert systems*, szerző: A. Kandel. Reading, MA: Addison-Weley, 1987.

McCloskey, D.N. (1986). *The Rhetoric of Economics*. Brighton, Sussex: Wheatsheaf Books Ltd.

McCloskey, D.N. (1994). *Knowledge and Persuasion in Economics*. Cambridge: Cambridge University Press.

OECD. *Frascati Manual.* Paris: OECD Publications Service, 2002.

OECD. *Managing National Innovation Systems.* Paris: OECD Publications Services, 1999.

OECD. *Oslo Manual: The Measurement of Scientific and Technological Activities.* 3rd Edition: OECD & Eurostat, 2005.

Passino, K.M. & Yurkovich, S. (1997). *Fuzzy Control*. Addison-Wesley Longman, Inc.

Retter, Gy. *Fuzzy, neurális, genetikus, kaotikus rendszerek.* Budapest: Akadémiai Kiadó, 2006.

Retter, Gyula. *Kombinált fuzzy, neurális, genetikus rendszerek.* Budapest: Invest-Marketing Bt., 2007.

Rummelhart, D.E. & McClellamd, J.L. *Parallel Distributed Processing: Explorations in the Microstructure of Cognition.* Cambridge, MA: MIT Press, 1986.

Zadeh, L.A. „A rationale for fuzzy control." *Journal of Dynamical Systems, Measurement and Control, 94*, 1972: 3-4.

STUDIA UBB NEGOTIA, LVII, 2, 2012, pp. 55 - 64
(RECOMMENDED CITATION)

EVALUATION OF THE NEW SZÉCHENYI PLAN'S ENTERPRISE-DEVELOPMENT INTERVENTIONS – SUGGESTIONS FOR IMPROVING THE PLAN'S EFFICIENCY AND EFFECTIVENESS

VALÉR JOBBÁGY[1]

ABSTRACT. The author of the article attempt**s** to analyze and evaluate the enterprise-development interventions proposed by the "New Széchenyi Plan" (development programme of the new Hungarian government) by using the experience on former development plans and programmes, reflecting to the so far announced contours of the future of EU Cohesion Policy and taking into account the EU's evaluation guidelines.

Furthermore, the author suggests concrete proposals with the intention of helping the governmental institutions responsible for development policy and of improving efficiency and effectiveness of the Plan, its programmes and calls.

Key words: European Funds; Regional Development; Enterprise-development; SME-development

JEL classifications: H25, O21, R58

The idea of re-orientation or alternative use of EU-Funds in order to attenuate the pains caused by the economic crisis arose right after its venue in most EU Member-States. This purpose was even supported by the EU Commission with regards to the exceptional situation. Hungary exploited this unique opportunity, and still in 2009, the so-called "professional government" (temporary, staying only for the one year) made several more direct funds available to small- and medium-sized enterprises and made the access to funds more flexible.

Frustrasted by the crises and the failures of the government before 2009, Hungary elected a new right-wing government in 2010, coming into power with many promises, namely changing everything spoiled by its predecessors.

After one and a half years Hungary has experienced much turbulence in different branches of public policy, but let us have a closer look on the use of EU-Funds, namely in the field of enterprise-development interventions.

[1] PhD student of the Doctoral School of Regional Economics and Policy at the University of Pécs, valer.jobbagy@ifua.hu (Consultant: Prof. Dr. Gyula Horváth); senior consultant in public policy and public administration, previously held leading positions in development policy planning.

The government, as promised, issued a new development plan called New Széchenyi at the beginning of 2011. Following one year of "lack of calls", the first major group of calls related to the new plan was published in early March.

Below I am inclined to analyze and evaluate the enterprise-development interventions proposed by the NSZP by using:

- the experience on former development plans and programmes, first of all the evaluations of the enterprise-development interventions of the former plans (I. NDP and NHDP): starting with the mid-term evaluation of Economic Competitiveness OP *(KPMG-IFUA H&P, 2006)*, followed by the evaluation of investment support granted for SMEs *(Béres A., 2008)*, by the impact assessment of grants for SME modernization *(Agenda Consulting-Expanzió-KTI, 2009) f*inally the mid-term evaluation of the Economic Development OP *(IFUA H&P-Budapest Institute).*
- the so far announced contours of the future of EU Cohesion Policy are also reflected in the essay *(Barca, F. and DG Regio, 2010), (DG Regio, 2010/2)* and
- EU evaluation guidelines are also taken into account *(DG Regio 2007), (DG Regio, 2007/2), (DG Regio, 2010)*.
- The assessment is based on the final version of NSZP and its programmes *(Government of Hungary, 2011)*, the calls for applications appeared so far *(NDA, 2011)* and the so-called "Action Plans" *(NDA, 2010)*, which constitute the basis for the calls.

Several methods were applied in the evaluation: planning documents were explored by desktop research, previous evaluations were processed by meta-evaluation, responsibles of programming and implementation system were interrogated by structured interviews and focus group interviews, specialists of the topic were asked through expert panels.

1. The priorities and programmes of the New Széchenyi Plan

1.1. The priorities of the Plan

The NSZP defines the following seven "priorities": Health Industry, Green-economy, "Home-creation", Enterprise-development, Science-Innovation, Employment and Transport.

The fact that the Plan defines focuses and priorities could be considered positive, however, there are doubts concerning the priorities themselves.

If one analyses the"*necessity/justification*"-aspect of these priorities, the following questions may arise: why specifically these areas are prioritised by the Plan? There is no trace of any kind of analysis, which could confirm the

selection of these areas or which could refer to the fact that other potential areas would have been considered and based on this analysis, rejected. In what respects are the former mentioned areas specific to Hungary? Could not they be prioritized areas of any other Eastern- and Central-European country? What are the reasons of green-economy and R&D being especially Hungarian breakout points, while every other country considers them as such? Why are not those fields selected, which are undoubtedly unique and perspective to Hungary such as agriculture and food industry? (Can it be just because another ministry deals with the field and it is financed by an other EU fund?)

Focusing solely on the document itself, without comparing it to other planning documents (*coherence*), when examining the relations between its priorities (*consistency*) one can get quite muddled cause-effect relationships. In this regard, questions may arise, whether the improving of green-economy, health industry or innovation are not parts of enterprise development; or could one talk about employment independently from all of these fields. This situation is even aggravated by the fact that these overlapping priorities being in causal relationship appear as individual programmes afterwards.

1.2. The programmes of the Plan, the relationship between the NSZP, its Action Plans and the calls for applications

By learning the seven programmes which are corresponding to the seven priorities, it can be stated that they are practically a "re-grouping" of the interventions of the New Hungarian Development Plan (Plan financed by the EU's Structural Funds and Cohesion Fund and detailed by the so-called Operational Programs), along a different principle, dimension. This is a fact, however I do not think that there would be of any difficulties, because of the following: i) there are no other major development resources but those funded by the EU, ii) these resources can only be used with following the main frameworks fixed in 2006/2007, iii) the government realized in time that the previously advocated full redrawing of the fixed frameworks and its approval by Brussels would take an immensely long time, and of which costs would have exceeded the expectable benefits.

However, the consistency of the so-formed "virtual cover-Plan" and the existing Operational Programmes beneath it are not perfect, raising serious practical problems and questions, beyond the theoretical nature of the problem.

The seven designated priorities/areas and its programmes do not cover the full extent of the field of intervention financed by Structural Funds and the Cohesion Fund. Therefore the next question is legitimate: what happens to development areas included in the Operational Programs, but not covered by the NSZT. As already mentioned above, agriculture and food industry are financed

by the New Hungary Rural Development Plan (NHRDP), but the social sector or public education, the places of which do not emerge from the new structure – precisely those sectors, the development of which is the key to the future of the country.

The Plan's consistency is further reduced by the appearance of the so-called "National Programs". Apart from the fact that the name seems semantically problematic, this new dimension does not help understanding either. One could think that the planners refer to interventions financed by the national budget exclusively, but a significant part of these projects could be financed by EU-funds, even if I do not think that the remaining amount would be enough for all of them (the rail GSMR system itself costs more than one billion euros), not to mention the disponible resources of the national budget.

As already mentioned at the programme level above the – theoretically independent – programs have overlaps between them. This leads to so tangled situations at the level of calls for applications, that e.g. employment calls can be found under the Enterprise-Development Programme; but calls for small and medium-sized enterprises do not appear this Programme but rather „cower" under the Science and Innovation Programme. Other examples could be those effects of the "rename", that applicants have to learn a new virtual programme-structure. This does not contribute to the clarification of the system for potential beneficiaries. The former system (NHDP) was transparent at least at programme level, even if at the level of calls the same cannot be stated, similarly to actual calls. This raises the question that once potential beneficiaries were already getting used to the frameworks and the structure of the previous system, did it surely have to be the first step to re-form the contentual structure of the system? Would not have it been enough to enforce certain focuses (the seven priorities/ areas) in the calls – eventually only this is what has happened after all? Furthermore, would not have it been more useful to use this energy for simplifying the implementing and procedure system – an area in which there can be much significant potential for improvements? And finally, was it worth the nearly one year pause of calls for applications?

Finally, the economic principle of planning and operating public policies states that when trying to reach defined goals, a government/country must consider all of the available intervention instruments and apply those with which these goals can be reached at lowest costs (efficient management of taxpayers' money). However, the programmes of the NSZP reflect the approach which was "committed" also by its predecessor, that everything should be solved through development policy/interventions. This could lead to a serious waste of resources since in some fields (e.g. employment, green-economy) much more progress and impact can be achieved by such instruments as regulation or tax policy. Therefore I recommend that the programmes should be completed

with a comprehensive set of intervention tools of the given fields at least for the period of the Plan. Efficiency and effectiveness of Hungarian development policy could be significantly improved in this way.

2. The enterprise-development interventions of the New Széchenyi Plan

The analysis is not limited only to the Enterprise Development Programme of the NSZP and its calls, but it is extended to other NSZP programmes and their calls which are relevant to the topic.

2.1. The novelties and changes brought by the Plan and its calls

The NSZP brought the most novelties and changes in the field of enterprise-development, which are summarized below:

- small-scale and automated call in innovation appeared for micro-, small- and medium-sized enterprises;
- automated calls gained more space anyhow;
- independent call appeared for micro-enterprises, their presence (eligibility) is strengthened in other calls as well;
- opportunities for large companies are narrowed strongly, in some cases even medium-sized companies are no longer targets;
- a new type of intervention was created by the combination of the non-refundable and the refundable tools, therefore it became possible to apply with a minimum own contribution („combined funding");
- financial tools are refocused on successful assets which fill in real „market gaps", such as micro-financing;
- goals as employment and equal opportunities represent separate SME measures;
- calls generating broadband supply on uncovered areas are lastly published after significant delay;
- calls for innovation and technology parks are expected not to be published any more;
- some of the calls are available for newly created firms too (the two years of preceding functioning is no longer a prerequisite);
- the requirement of positive financial result for the previous period is ceased;
- the obligatory commitment of beneficiary firms on growth is removed, its role is taken over by commitments on keeping the number of employees and on the increase of personnel expenditures;
- the Plan's prioritized areas are taken into account in the selection;

- on the basis of the information, on the amount of available resources and the numbers of calls expected by the planner it can be stated, that on the average the new system will support smaller-scale developments in all areas, compared to the former situation;

Part of these changes can be supported largely. Narrowing the number of calls helps the transparency and is quite probable to strengthen the *efficiency* and the *effectiveness* of interventions, also. The spread of automatic calls can also improve efficiency. The appearance of new focuses/solutions (the seven priority areas in the evaluation, combined funding), the repositioning of others (financial assets), improvemennts previously planned but not launched so far (broadband developments) also enhance efficiency and effectiveness.

2.2. The Plan's and its tenders' – inherited or newly generated – weaknesses

Apart from the thoughts previously elaborated above, I consider that some of the changes (or in some case not changes, the survival of the former situation) still go against efficiency and effectiveness of the development policy:

- Effectiveness, utility of some types of interventions is rather doubtful. Even the relatively scarce Hungarian but the abundantly available international experience too shows that financial supports targeted exclusively on investment, without any other specific objective, have an impact quasi zero on competitiveness/growth or employment *(Béres A., 2008; Agenda et al., 2009)*. (The results from Poland are even worse: it turned out that the competitiveness of enterprises supported this way declined, compared to their competitors, because the support "made them lazy".) But what could be the result, effect of an intervention if a few hundreds (thousands) of enterprises are supported from tens of thousands (in the case of micro companies its hundreds of thousands). This happens in a way that the supported companies aren't necessarily the best, but those who apply – and a very large proportion of the latter will receive the support. In addition, since most of these companies produce only to domestic market, the support enables them to "defeat" their rivals (so-called "*crowding out effect*"), and it is even conceivable that because of this support its defeated rivals will need assistance in a second turn. Not to mention that 80-90% of enterprises supported this way acknowledge that they would have realised the investment without support as well (so-called "*deadweight effect*") *(KPMG-IFUAH&P, 2006)*. Finally, it may not be irrelevant that these investments indirectly strengthen foreign machine industry, what is quite well traceable by the changes of import data and its composition.

- This problem is even more cutting in the case of micro businesses, especially because the system is extended to newly started ones, too. I am inclined to think that it is not an economic policy objective but rather the purpose "to rejoice a very narrow circle", to give grants of a few million Forints to some thousands of companies out of hundreds of thousands potentials in an automated procedure (means: who meets certain eligibility criteria will automatically receive support), without any justified development policy goal (for these tenders there aren't even any industry preferences). It is even more the case when support can be spent on infrastructure (buildings). Moreover, the introduced automatic eligibility criteria being automatic, will not be able to select properly among companies/projects (e.g. in the case of innovation tenders) which causes a serious risk to the financing authorities and the potential future obligation of reimbursement *(IFUA H&P-BI, 2010)*.

- It fits into the same train of thought, that the expected number of tenders estimated by the planners shows that the average project size will be seriously reduced. The intention of the planners is certainly to support more enterprises, but according to what was said above, only a fraction of potential beneficiaries will obtain non-refundable resources.

- I consider the combination of non-refundable and refundable assets tools („combined financing") a serious and very positive step. This gives the chance to companies to turn from the "world of operation by (nun-refundable) supports" to the "normal (refundable) world of business operation", where "resources have their costs". This is obviously needed because, according to news, in the upcoming EU programming period from 2014 there will be mostly this kind of resources for similar purposes.
  However I think that applying this tool (combined financing) to micro-enterprises is highly risky since enterprises could apply with a minimal, quasi zero own contribution, which could drive them to serious irresponsibility – therefore it reinforces the doubts/problems mentioned above. Moreover, this step completed with the new possibility that enterprises can apply for support without previous history of operation holds the risk that a number of companies "specialized in getting of supports" will appear, which greatly increases the risk of the financing authorities.
  In addition, it is not at all clear why this innovative instrument was introduced by the planners for micro-enterprises and not for SMEs (including many non-bankable among them) with a lower non-refunding threshold.

- The announced calls are still *"in competition*" with each other in many cases. (This is the case, when two calls having different terms aim at the same (developmental) purpose or/and at the same target group. As a result, candidates prefer one call (having better terms), where an excessive demand occurs and on the other hand intact resources are left at the other, which leads to a sub-optimal, inefficient use of available resources. It also causes that efficiency and effectiveness of these interventions cannot be judged objectively later and this won't help the planners/decision makers to step forward.) Several of these "competing calls" can be identified in the system especially between refundable and non-refundable resources (the relatively low popularity of financial instruments is mainly due to this, who wants to repay the support when it is also possible to not to), but overlaps remained between the investment calls (same purpose and target group but different intensity), and such risk can be seen between investment and innovation calls.

- Regarding obligatory commitments to take by enterprises for the support, I do not think that the replacement of growth-related ones with those on keeping the number of employees and the increase of personnel expenditures is a step forward.
  On the demand side of the labour-market I do believe that other instruments of intervention (tax and contribution system, business environment, regulation) are generally much more effective ("cheaper") than development policy. But if the government wants to use development policy by all means then, since it is on enterprise development, I assume that the primary goal should be growth. On the demand side of the labour-market it is growth and competitiveness which could entail increase of employment and not the administratively prescribed employment obligation (without any objective on growth and competitiveness).
  On the other hand, at the expected beginning of the next growth period of the Hungarian economy it doesn't seem an excessively ambitious goal to keep the number of employees. The increase in personal expense is on the other hand not an appropriate indicator because a significant part of it depends not on the enterprise but on the regulator – and moreover it can easily be "manipulated", as opposed to revenue.
  At the same time, in the light of the current economic situation I consider the cease of the obligation of having positive results in precedent years rather positive.

- The evaluation criteria of calls are generally too company-centric (mainly the size of companies dominates), almost nothing is said/asked on the proposed development project for which support is requested (only

indirectly on its financial feasibility/sustainability through financial situation of the company). This is a serious weakness, especially in the case of larger developments.

- Finally, I consider important and reasonable tool/instrument the previously existing calls like the development of "innovation and technology parks" which, according to the actual purposes, will no longer appear in the development palette.

Conclusions and recommendations

If the government decides to support investments of companies it should use it as a tool/instrument in order to reach other, more justified development policy targets (remedy of market failures). Regarding SMEs, "lack of financial resources" is often mentioned as such, but it is actually not true. There are certain segments where there are gaps of financing (e.g. under a certain company size the theoretically creditable but not bankable businesses) but they should be treated with the appropriate instruments (e.g. micro-financing, as it is included properly in the portfolio, anyway).

Instead of "rejoicing" a range of micro-enterprises it would be much more important to develop rural SMEs (which operate in rural regions). They could be in theory supported from the New Hungary Rural Development Plan (NHRDP) but they are not actually, which means that they are totally left out of all existing support schemes. This objective has already been proposed to be financed from Economic Development Operational Programme (EDOP), moreover Hungarian government announced this change to the EU Commission in 2009, but then, according to the information, the new administration has withdrawn it.

As for the intention of the planners to support more enterprises with the same sum I do think that rather less but more useful/effective developments should be supported by the system.

The innovative instrument of "combined financing" should essentially focused not on micro firms but on SMEs (including many non-bankable among them) with a lower non-refunding threshold.

"Competition" should be further reduced between calls to the minimum possible, mainly between investment calls themselves and between investment and innovation calls.

Regarding obligatory commitments to take by enterprises for the support growth-related ones should be re-introduced on the expense of employment related ones.

The evaluation criteria of calls should be oriented towards the proposed development project for which support is requested, especially in the case of larger developments.

I hope that these concrete proposals made beside the evaluating remarks will be of help for governmental institutions responsible for development policy in their efforts to improve efficiency and effectiveness of the Plan, its programmes and the calls.

REFERENCES

Agenda Consulting-Expanzió-KTI (2009), Impact evaluation of grants for SME modernization in the framework of National Development Plan

Barca, F. and DG Regio, Commission of the European Union (2010), An Agenda for a Reformed Cohesion Policy (Barca Report)

Béres A. (2008), Evaluation of NDP I's „investment support" granted for small and medium enterprises

DG Regio, Commission of the European Union (2007), Working Document No 1: Indicative Guidelines on Evaluation Methods: Ex-Ante Evaluation

DG Regio, Commission of the European Union (2007/2), Working Document No 5: Indicative Guidelines on Evaluation Methods: Evaluation during the Programming Period

DG Regio, Commission of the European Union (2010), EVALSED: The resource for the evaluation of Socio-Economic Development

DG Regio, Commission of the European Union (2010/2), Fifth Report on Economic, Social and Territorial Cohesion

Ecostat (2008), Some measurable effects of the use of the funds of the I. National Development Plan

Government of Hungary (2011), New Széchenyi Plan – The development plan of recovery, renewal and uprise

IFUA Horváth&Partners – Budapest Institute (2010), Mid-term evaluation of Economic Development Operational Programme

KPMG – IFUA Horváth&Partners (2006), Mid-term evaluation of Economic Competitiveness Operational Programme

National Development Agency (2006), Mid-term evaluation of the 1st National Development Plan

National Development Agency (2009), National Strategic Report on the basis of 1083/2006/EK 29. (Hungary)

National Development Agency (2010), Action Plans of the New Széchenyi Plan (2011-2013)

National Development Agency (2011), Calls for applications of the New Széchenyi Plan

STUDIA UBB NEGOTIA, LVII, 2, 2012, pp. 65 - 91
(RECOMMENDED CITATION)

THE EVOLUTION OF THE ROMANIAN CAR INDUSTRY AND ITS POSITION ON EUROPEAN MARKET

ALINA HAGIU[1], MAGDALENA PLATIS[2]

ABSTRACT. Automotive industry is one of the most important industries in the world, which leaves its mark not only on the world economy but also on the world culture; it occupies millions of people and generates millions of dollars as overall profits. This industry has revolutionized the twentieth century, irreversibly changing the way people live, work, travel and leisure spending. Automobile construction has become the largest industrial activity, with over 50 million units manufactured annually.

Automobile industry influences the world economy, generating in a year nearly 17% of shipments of durable goods, designed to operate at least three years; automobile production implies as inputs large amounts of iron, steel, aluminum, natural rubber, copper, zinc , glass, leather, plastic, lead and platinum, more than any other industry.

The paper aims to present the evolution of car industry in Romania and the main directions in which the author considers to be done to increase the international competitiveness of Romanian companies, taking into account the European experience and worldwide. The paper will conclude with a relevant case study on the most appropriate ways and means to exploit the competitive advantages in relation to the actual situation existing in the automotive industry in Romania, starting from the positive experience of the firms acting in this area.

Key words: competitiveness, car industry, strategy, investments, globalization

JEL Classification: L10, L62,

I. Introduction

The XXI century represents a challenge for car manufacturers, but one aspect is widely recognized: the desire to own a car is widespread or universal across the globe. Motor cars remain the most used method to get somewhere: in the proper sense, as a means of transport, and figuratively, as the image of

[1] University Assistant Ph.D. Candidate, University of Pitesti, Faculty of Economic Sciences, Department of Economic Theory and Finance, Romania, alinahagiu@yahoo.com
[2] Ph.D. Professor, University of Bucharest, Faculty of Administration and Business, Romania, magdalena.iordache-platis@drept.unibuc.ro

social status. The year of car apparition, 1885, irreversibly changed the world, revolutionizing people's lifestyles. This creation anticipated new industrial areas, stimulated the massive employment, eroded the "class struggle", offering the opportunity to travel also to those without financial means and has given us a new culture, providing hobby pleasure to millions of people.

Automobile production is one of the most important economic activities, involving different weights and in other sectors also, such as, technical research, financial services, healthcare, petroleum products, design and construction of highways, international tourism, cinema, etc. The automobile revolutionized the people moments: the universal desire to possess a car has its historical origin in people's aspirations for freedom, mobility, speed, comfort, security, independence, culture, stable income and a better quality of life, representing the most important human acquisition after housing. Today, the car provides conjunction also with pleasure, but also as a means of employment, being the subject of legislative disputes.

The car was a means of affirmation of women in public space and visual representations generated by advertisements, sporting events, count not only for the top wheel aces, but for competitive brands, delivering identity and values.

The automotive industry is part of the secondary sector of an economy, but by the relationships it conducts we can affirm that involves different weights in other areas also: relationships with automobile manufacturers on components for assembly, repair and spare parts plus other research activities, technical, banking and insurance, health care, protection, petroleum, gas, minerals, highway design, construction, international tourism, motels, cinema, television, marketing companies, organization of motor racing, tuning, even modern fast food and income due to the existence of the automobile industry.

Automotive industry stimulates international trade economic growth, research and sustainable development of economies. Unemployment rates are significantly lower than the average on the economy. Significant financial effects resulting from the motoring taxes are diverted to community service, highway construction, culture, health and education.

Development of automobile industry is desirable to be examined in terms of concepts of environmental protection, economic growth and social equity. The car is a very complex system, through the chain of economic activities involved in creating, producing, delivering, operating, supporting services, but also get rid of it.

The presence of the car is actually a delicate problem to be solved by moderation of urban human addiction to the automobile, the emergence of a new culture of consumption, reduced road violence and negative effects on the, by valuing the transport offer with "commune car."

Romania's EU accession, involves major environmental responsibilities, namely economic, political, demographic and socio-cultural environment. Romanian automotive industry is highly internationalized, being probably the only national competitive sector able to be integrated in the current conjuncture of internationalization and globalization of world economy. Creating a single impressive market, by dissipation of trade barriers will mean for the Romanian automotive manufacturers a new challenge, that of creating a highly competitive sector.

Production, market and competition in automobile are in Romania is still at their beginnings under the influence of internal and international requirements of quantity, quality and structure. Currently, Romania, as a member of the European Union since January 1, 2007, faces new economic opportunities that will be marked also in the future to improve production and sale of cars, which have a powerful drive effect for the Romanian economic system.

II. Material and method

The object of the research has been competitive strategies and the competitiveness of the car industry in the context of knowledge-based economy and the global crisis. Emphasis was placed on the analysis of automobile industry in Romania, studied in comparison with the European automobile industry.

Theoretical support of the scientific research focused on studying both the fundamental work of specialists from several countries, as well as regular publications of EUROSTAT, OECD, World Bank, World Economic Forum, Heritage Foundation, Dacia Group's internal publications; there have been analyzed statistical data of Romania's National Statistics Institute, the Association of Automotive Manufacturers and Importers, Association of Automobile Manufacturers in Romania, the European Automobile Manufacturer's Association, National Commission for Prognosis, the Ministry of Finance, etc..

Investigative Methodology

The procedures mainly used in our research were: logical analysis and synthesis, induction and deduction, analogy and the statistical method. An important role has benchmarking process used in formulating ideas on Romanian and European automotive industry. To study the competitiveness and competitive strategies was used the case study method, which allowed drawing conclusions on the automotive industry in Romania.

By the way of treatment is trying the issues orientation on the axis challenge - trends - solutions in the area of the Romanian automotive industry competitiveness at the European level. The main and suggestive characteristics of the paper are systematic work, analytic and synthetic nature, high degree of continuous coverage and functionality.

The theoretical aspects are supplemented with examples, cases and numerical models where necessary. All these are subjected to the same fundamental goals, namely to facilitate understanding and using concepts and tools and encourage initiative and creativity of those who study the paper. In this way we hope this can help build a modern, dynamic and optimistic way of thinking.

Working methodology involved crossing sustainable economic development theories with the analysis frame generated by the current picture of the internationalization of production and automotive markets.

The evolution of the Romanian automobile industry

The destinies of the plants in Craiova and Pitesti went in parallel. At the Koreans coming in as investors at Daewoo Craiova, in 1994, they obtained tax breaks, which at the time drew the discontent of the other manufacturer, Dacia. In 1999, Renault managed to obtain an exemption from income tax for a period of five years starting with the first year when profit is obtained. The only condition was that the company should record profit within three years after the full payment of the price of shares acquired from the State Property Fund.

Subsequently, the term of which was to calculate the period of three years was amended when were transferred to Renault the ownership of shares.

Since the transfer of ownership and payment of shares took place on September 29, 1999, results that facilities were granted by September 2007.

Both manufacturers have gone to waste until 2004. In late 2003, Automobile Dacia had loses of 3,600 billion lei and Daewoo Romania of 1,600 billion lei. But if the factory in Pitesti past on profit next year, the situation was not as promising in Craiova. With the range of products, sold only on internal market, as much as increased sales, Daewoo Automobile Romania could improve profitability only if consider staff restructuring and limiting wage increases. Compared to Dacia, which had 13,873 employees at the time, Daewoo work with 3,600 people – therefore to limit, in the number of employees.

2005 was a record year of internal car market, especially cars. It was sold one car for every 100 inhabitants. Romania was the second car market in Central and Southeastern Europe after Poland, a country with a population twice as large. The best that car was sold was from far Logan: over 88 000 units. The export of cars compared to 2004 was multiplied by 3.5 times, almost exclusively based on Logan. Domestic sales continued to grow moderately in 2006. This trend continued in subsequent years supported by positive dynamics of the national economy.

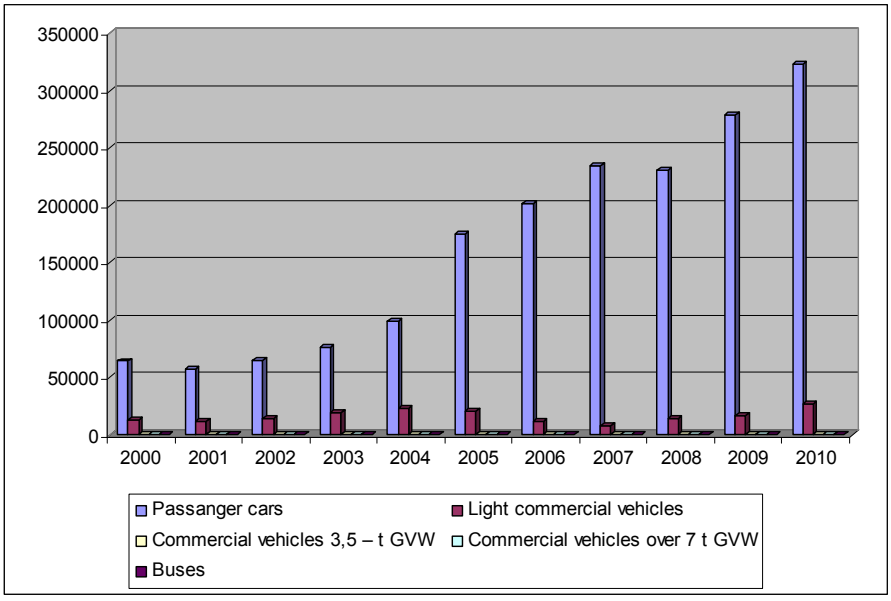


Figure 1: Production and assembly of cars in Romania, by category

Source: *realized by the author based on Statistcal Bulletin published by APIA, 2000-2010*

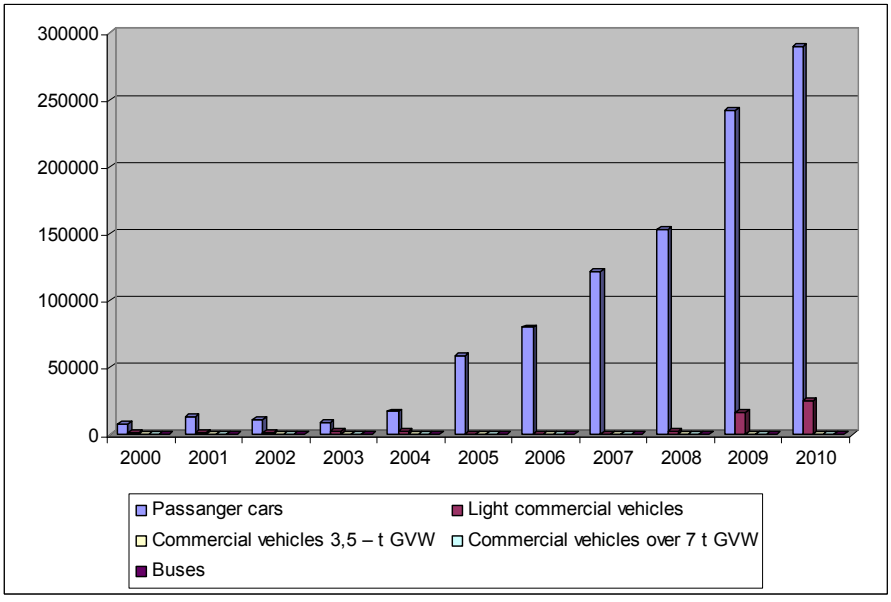


Figure 2: Exports of cars manufactured in Romania by category

Source: *realized by the author based on Statistical Bulletin published by APIA, 2000-2010*

In 2008 the positive evolution of Dacia sales has been highlighted also by the increasing by 0.2% of the shares held by the Romanian manufacturer of the European market, compared with 2007, from which has now 1.2%.Thus, Dacia has sold about 258,000 vehicles in 2008.

An evolution free from problems in 2008 had also Ford, the second manufacturer present in Romania. Came in 2007 when it bought the plant in Craiova, Ford has begun the production process in 2008, so the division from Romania felt less, or no the turbulence that occurred during this period on global automotive market. Since 2012, annual production of vehicles and engines will rise up to 300,000 each. The number of factory jobs will nearly double from 3900 in present to 7000. But, at European level, Ford expected a decrease of sales by at least two million units.

Through organization and management all steps of the Dacia production system represents a coordinated and consistent entire at the reach of the basic work unit leader. Dacia specific production system is that it is designed to achieve "performance" through simple steps, within reach of every man. To improve this system of production, Renault acquired through its partner Nissan the Japanese experience in the field. The activity of spare parts generated a turnover of 122 million euros, equivalent to 9.8% of total turnover registered by Dacia. RIR (Renault Industrie Roumanie) which manages CKD export center in Mioveni added to the total turnover, 131 million euros, so that, overall, the combined turnover from Dacia & RIR reached 1.320 million, of which 36% from export. In 2005, full year of trading Logan, Dacia became a profitable company, the net profit after tax was 57 million euros.

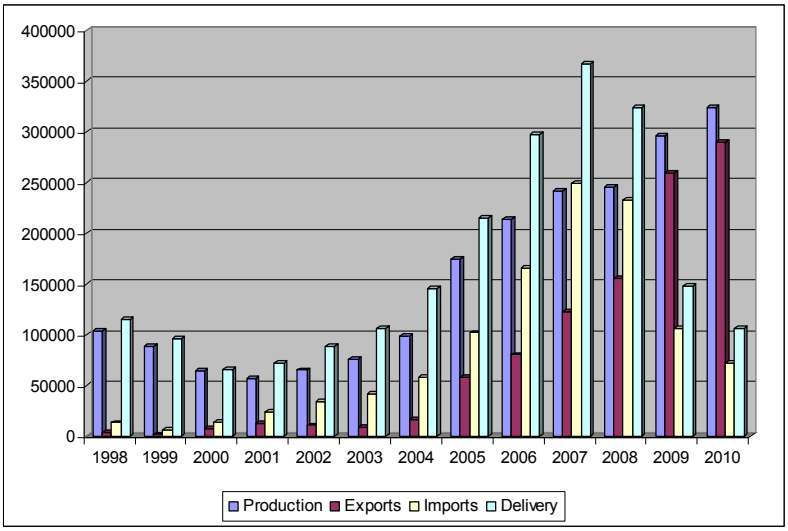


Figure 3: The evolution of the car industry in Romania

Source: *realized by the author based on Statistical Bulletin published by APIA, 1998-2010*

Investments totaled in 2005, 157 million euros, which raises the aggregate value of investments in Dacia after privatization by the end of last year to 630 million euros. For 2006, the plant production capacity was increased to 235,000 units per year. Dacia range was extended by introducing a new version of petrol motorizing of 107 bhp and break wagon body version with 5 and 7 seats starting from October. Regarding the commercial activity, Dacia realized sales of approx. 200,000 vehicles, of which 112 000 in Romania and 88,000 for export. In 2007, 2008 and 2009 Dacia sales on the internal market continued to decline, but exports have been growing.

Table 1. The evolution of Dacia sales, by models, in Romania

	2006	2007	2008	2009	2010
Sandero (inclusively Stepway version)	0	0	8.916	6 765	3047
Logan berlina	96.044	76.785	51.149	25 722	22791
Logan MCV	0	18.427	15.175	6 249	3678
Logan VAN	0	6.850	5.298	1 588	1473
Logan Pick Up	11.733	0	4.170	1 538	915
Duster	-	-	-	-	4826
Total	107.777	102.062	84.708	41 862	36730

Source: *realized by the author based on dates from DACIA GROUP*

Table 2. The evolution of Dacia sales by destination

	2004	2005	2006	2007	2008	2009
Romania	80 013	113 276	107 777	102 062	84 708	41 862
International	16 306	51 130*	88 931*	128 411*	173 664*	269 420
Total	96 319	164 406	196 708	230 473	258 372	311 282

** Inclusive Dacia Logan vehicles produced in Morocco*
Source: *realized by the author based on dates from DACIA GROUP*

Current trends in the car market in Romania

Sustainable growth

After 60 years of tradition in the automotive industry, Romania, with an optimal positioning in Europe to increase demand and production of cars, has a strong car industry with a modern and diverse network of providers. A new development opportunity was born when Ford took over Daewoo Craiova. Automotive industry in Romania has seen a significant development over the period 2001-2007, mainly due to Renault involvement at Dacia and to its

supplier's investments. Fallowing their footsteps, more and important provider decided to open production capacities in Romania. Considering the fact that Renault decided to increase Dacia's production capacity to 400,000 autovehicles per year ant CKD collections (Completely Knocked Down) to 800,000 (equivalent to 400,000 vehicles) which will be sent to other centers of Logan production in different parts of the world, and that Ford aims to produce 300,000 vehicles per year, car sector growth is assured, and Romania will produce the equivalent of 1.1 million vehicles in 2011.

With a population of around 22 million inhabitants, Romania ranks second in terms of size, among the newest EU members, after Poland. Approximately 120,000 people are employed in the automotive industry. Local production of cars has known a significant increase over recent years. In 2007 has increased by 16%, to 241,712 units compared with 2006, and in 2008 increased by 13.6% compared to 2007.

Exports of passenger cars increased by 41.1% in 2008, representing an increase by five times compared with 2004, and it is expected to increase in coming years.

In March 2008, Ford took the old car factory in Craiova, and plans to invest over 650 million euros to modernize and increase production capacity to over 300.00 cars per year.

Foreign Direct Investments

Renault remains the main investor in the automotive industry, with a total invested sum in Romania of 1.4 billion euros. Moreover, the new Renault Technology Roumanie investment in Titu means another investment of more than 100 million euros which creates 3,000 jobs, of which 2,300 are for persons with medium studies. After Ford investment in Craiova, the wave of Ford suppliers to come will bring new investments for those suppliers to create their own production capacities in Romania. Meanwhile, major foreign suppliers established in Romania have announced investment plans to increase production capacity and create new research centers. Even if labor force costs began to rise, is still at a report of 1/10 compared with the cost of an hour of work in Western Europe, and therefore Romania continues to be an attractive target for foreign investors.

Suppliers

Currently, the number of suppliers for the car industry is bigger than 500 cars, with a turnover of approximately EUR 6.5 billion. An important number of these suppliers are ACAROM (Association of Automotive Manufacturers of Romania) members, representative association in the automotive industry. Apart from Romanian suppliers, brands such as Johnson Controls, Valeo, Trelleborg, Delphi, ACI, Siemens, Continental, Pirelli, Hella, TRW, Faurecia and others,

produce in Romania for OEMs in the west. ACAROM projections for 2010-2011 show a growth of the turnover of the firms producing components for cars, which, added to the turnover of the two producers Dacia and Ford, will lead to a total of approximately 10% of the total GDP of Romania.[3]

Research and development

The research - development related to automotive industry began along with the development of car industry in 1960. Currently, the main pillars of research - development in the car area are backed by the other two pillars: academic research in 11 technical universities and private research institutions which have started to develop mainly in 2005. In Romania, companies such as Continental, Siemens, Ina Schaefer, etc. invested in R&D centers. Renault's new Technology Research Center in Romania development activities will increase substantially, bringing added value to production activity.

Dacia sales in 2010

In the first six months of 2010, Dacia sold 181,826 vehicles, in increase with 18.2% compared to 153,874 units shipped in the same period of the last year. Dacia registers so for the fifth consecutive year, a new half-yearly sales record.

On Romanian market, Dacia sold in the first half of this year 19,294 vehicles, reflecting a 33.5% market share, up with 3.5 points over the same period of 2009. Dacia sales on international markets have exceeded 162,500 units, representing almost 90% of all mark deliveries in the first quarter.

France became the leading market for Dacia (64 287 sold units). In late June, it ranked sixth in the standings sales from Hexagon, with a market share of 4.5%. Taking into account only sales to individuals, Dacia range fourth position on the French market in first half of 2010.

Second rank in international sales was occupied by Germany, with 17,107 sold Dacia vehicles, followed by Italy with 13,755 units.

Table 3. Top 10 export destinations in 2010

	Tara	Unit
1	**France**	110 076
2	**Germany**	40 500
3	**Italy**	21 930
4	**Spain**	21 753
5	**Turkey**	19 167

[3] www.acarom.ro

	Tara	Unit
6	**Algery**	18 578
7	**Belgium**	11 403
8	**Austria**	6 068
9	**Poland**	6 018
10	**Netherlands**	5 557
*	**Morocco** (center of Dacia production)	18 087

Source: *www.daciagroup.com*

III. RESULTS AND DISCUSSIONS

A. The position of the Romanian car industry within the European car industry

By 2008, the European branch of the automotive industry felt a little better. Everyone was pleased with the market, although there were some stagnation warnings about a possible crisis. EU enlargement, which led to the creation of new markets with potential, but also the economic development of Russia were huge balloons of oxygen for all manufacturers. Even the American giants, through the European division, found that they can earn good money also from other part than the U.S. The market leader, Volkswagen has shown that you can survive a turbulent period if you focus on the public desires.

Those from Renault chose also one of the winning books, at least for the moment, respectively Dacia Logan, who covered successfully he void created by reductions of French models. Fiat has reshaped the portfolio and recovered after it had approached the disaster. Not at least, Asians have rediscovered Europe investing heavily in factories, dealers networking and even products for this market. But reality shows that also Europe is sensitive to crises. Everyone lost ground, in a context sensitive, in which falls in September 2008 were nearly 10% over the same month of 2007, cumulating a drop of 5 percent for full year 2008.[4].

The saving for the moment became from the former communist states, which were still growing at different rates. Whether talking about the Czech Republic or Hungary, countries with somewhat higher income or about Romania or Bulgaria, in East were still buying new cars. But even here the positive evolution is nearing its end and the best example is Romania, which after 3-4 years of increase watches now the inventory from the importers parking.

[4] www.acea.com

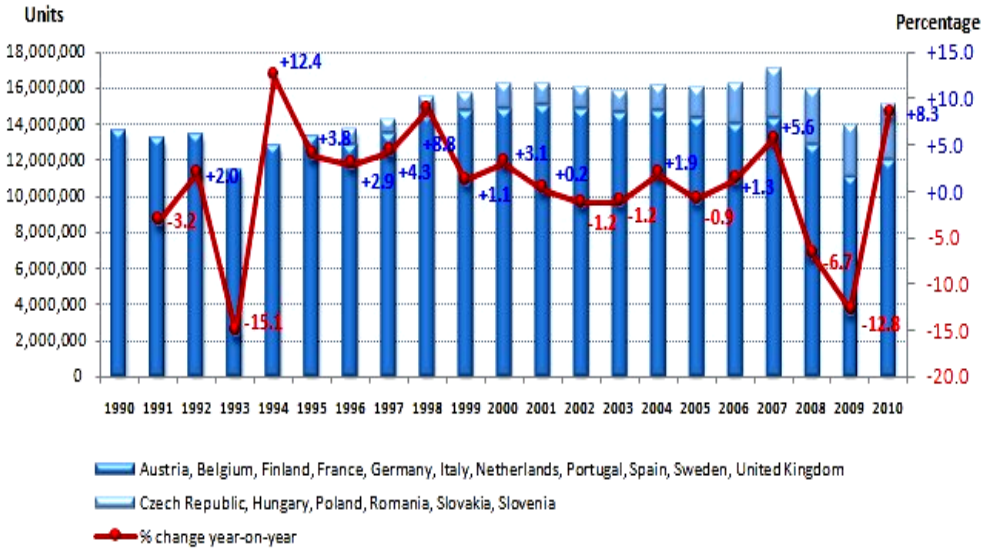


Figure 4: The evolution of car production in Europe in the period 1990-2010

Source: *www.acea.com*

The European automobile production in 2009 declined until the level from 1996. In 2009, the total vehicle production in Europe, including trucks, small cars and buses fell by 17% compared to 2008 and by 23% compared with 2007, pre-crisis year. Total production of vehicles reached 15.2 million units in 2009.

More specifically, the production of vehicles for transportation of persons decreased by 13% in 2009 compared to 2008 and by 18% compared to 2007, reaching 13.4 million units, close to the largest decrease - historical – from 1993, minus 15%, but registering a negative record of the last 14 years.[5] Worse is standing vans and trucks production, which decreased by 42% and respectively 64% compared with 2008, also registering a historical record, clear all negative. Despite a decline of 13.8%, Germany remains the largest European producer, with 5.2 million units produced in 2009. Is followed by Spain with a minus of 14.6% and third place is taken by France, with a decrease of 20.2%. Britain has retained fourth place with a minus of 33.9% and Italy dropped on the seventh place, after the Czech Republic and Poland. The only two countries which registered increases in automobile production are the Czech Republic

[5] Macduffie, J.P., Fujimoto T. – „Why Dinosaurs Will Keep Ruling the Auto Industry", Harvard Business Review, Volume: 88, Issue: 6, Pages: 23-25, 2010.

and Slovenia, which have registered increases of 3, respectively 7.5%. Austria has the largest European decline, i.e. a minus of 52.6%.[6]

Neither in the new car registrations the situation is not a favorable one. Only 14.1 million new vehicles were registered in Europe in 2009. Countries that have recorded increases in new car registrations are: Slovakia +6.7%, Czech Republic +12.5%, Austria +8%, France +10.7% and Germany +23.2%. All increases are reported compared to the previous year, 2008 and largely due to fleet renewal programs supported by the governments of those countries.

In other major European markets, sales of new cars fell, examples being Italy -0.2%, UK -6.4% and Spain with -17.9%.

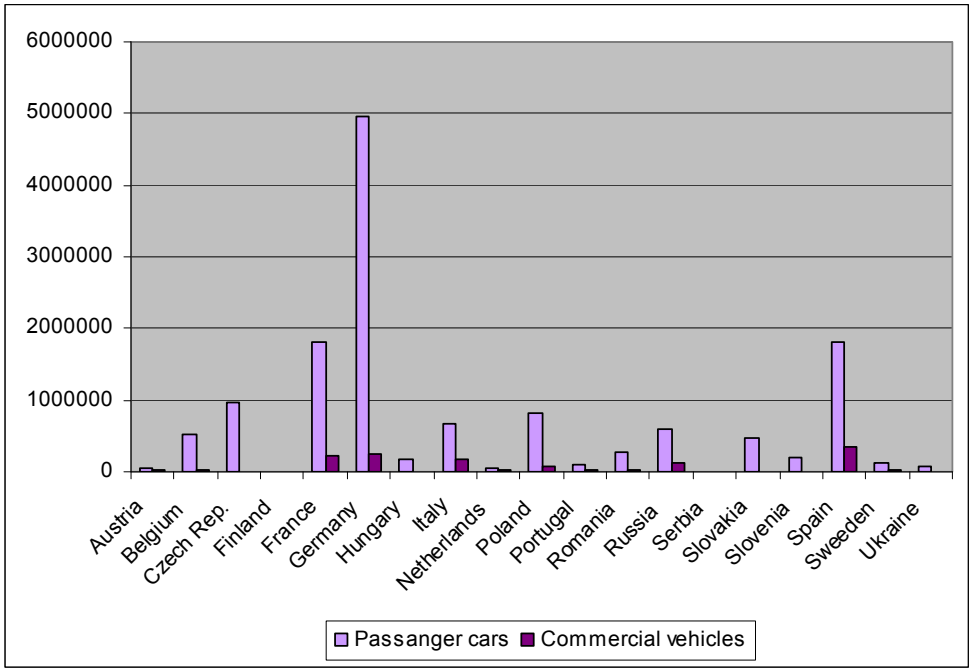


Figure 5: Production of cars and commercial vehicles in Romania and Europe

Source: *realized by the author based on the ACEA dates*

Another interesting report is that of ecological cars or green cars, which according to ACEA, demand raised by 59%. These vehicles are emitting less than 120g/km CO2. Sales of these vehicles raised in 2009 to 3.2 million units, with 1.2 million more than in 2008 and managed to climb at a rate of 25% of all cars. The percentage of diesel cars fell from a total of 52.7% to

[6] www.acea.com

45.9%, while European preference for engines fell to a preferred cylinder to be around 1600 cc. i.e. the smallest average displacement Europeans preferred since 1991.

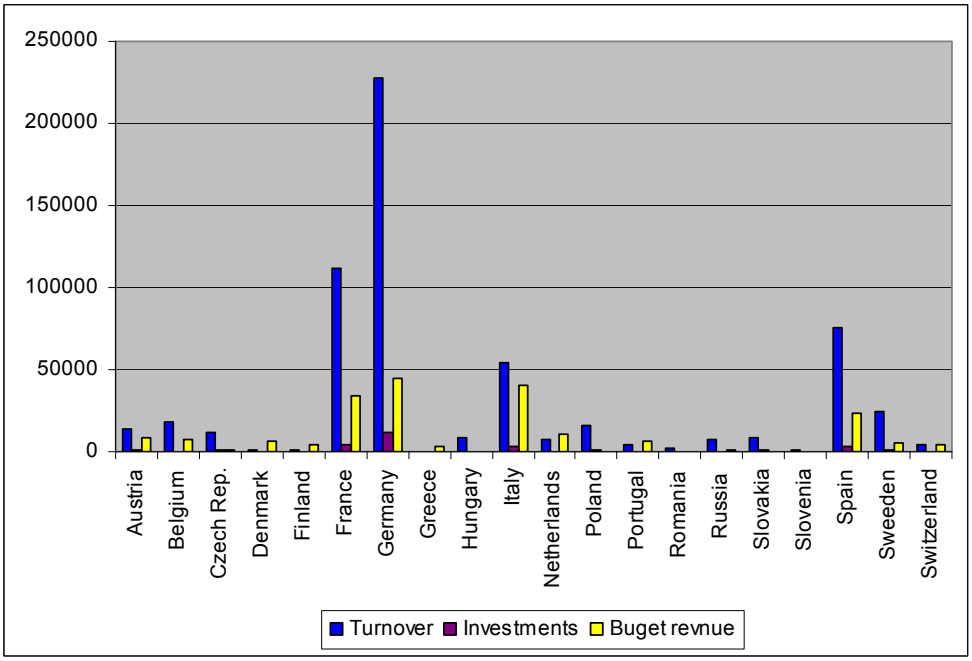


Figure 8: Automotive industry and the economy (in million €)

Source: *made by the author based on data developed by ACEA*

B. Competitive position of Romania in 2009

Switzerland tops the overall ranking of Global Competitiveness Report 2009 - 2010, outpacing traditional occupant, USA, this ranking the second place, followed by Singapore, Sweden and Denmark.

Romania occupies 64 positions of the 133 countries in the current report, up four places compared with the last year. The score improving, however insignificant - 4.11 compared to 4.1 (on a scale of 1 - the lowest, to 7 - the best). However, compared to the previous report in which Romania was the second smallest in the European Union this year, three member countries are less competitive (Latvia, Greece and Bulgaria). At the time of the report, based on statistical data from 2008 and on a survey among managers in spring 2009, al least Latvia was more affected by the crisis than Romania.

The lowest score (2.67) was obtained from the infrastructure chapter, in this case Romania occupying position 110 (compared with 105 last year) and being placed last in the European Union. Also at "Health and basic education" and "Technology Preparation" indicators, our country has the lowest score from the member countries.

Other weaknesses are "Higher education and training" and „business sophistication" where from the EU countries, only Bulgaria is in a weaker position.

By contrast, Romania is ahead of countries like Greece, Portugal or Italy, standing 75 places in terms of macroeconomic stability, but is exceeded by Bulgaria (ranked 45). One of the best scores were received for the sophistication of financial markets, the place 56 on which our country, positioning it over countries like Greece, Italy and Latvia. Best place in the ranking (41) is obtained in the "market size", but Romania lost points in terms of goods market efficiency (ranked 61, however, before Bulgaria, Hungary and Italy) and labor market efficiency (79th, Italy considerably higher – 117, Greece - 116 or Portugal - 103).

Table 4. The Global competitiveness Index, 2010

The Global Competitiveness Index 2009–2010 rankings and 2008–2009 comparisons				
	GCI 2009–2010			**GCI 2008–2009**
Country/Economy	Rank	Score		Rank*
Switzerland	1	5,60		2
United States	2	5,59		1
Singapore	3	5,55		5
Sweden	4	5,51		4
Denmark	5	5,46		3
Finland	6	5,43		6
Germany	7	5,37		7
Japan	8	5,37		9
Canada	9	5,33		10
Netherlands	10	5,32		8
Hong Kong SAR	11	5,22		11
Taiwan, China	12	5,20		17
United Kingdom	13	5,19		12
Norway	14	5,17		15
Australia	15	5,15		18
France	16	5,13		16
Austria	17	5,13		14
Belgium	18	5,09		19
Korea, Rep.	19	5,00		13

The Global Competitiveness Index 2009–2010 rankings and 2008–2009 comparisons				
	GCI 2009–2010			GCI 2008–2009
New Zealand	20	4,98		24
Luxembourg	21	4,96		25
Qatar	22	4,95		26
United Arab Emirates	23	4,92		31
Malaysia	24	4,87		21
Ireland	25	4,84		22
Iceland	26	4,80		20
Israel	27	4,80		23
Saudi Arabia	28	4,75		27
China	29	4,74		30
Chile	30	4,70		28
Czech Republic	31	4,67		33
Brunei Darussalam	32	4,64		39
Spain	33	4,59		29
Cyprus	34	4,57		40
Estonia	35	4,56		32
Thailand	36	4,56		34
Slovenia	37	4,55		42
Bahrain	38	4,54		37
Kuwait	39	4,53		35
Tunisia	40	4,50		36
Oman	41	4,49		38
Puerto Rico	42	4,48		41
Portugal	43	4,40		43
Barbados	44	4,35		47
South Africa	45	4,34		45
Poland	46	4,33		53
Slovak Republic	47	4,31		46
Italy	48	4,31		49
India	49	4,30		50
Jordan	50	4,30		48
Azerbaijan	51	4,30		69
Malta	52	4,30		52
Lithuania	53	4,30		44
Indonesia	54	4,26		55
Costa Rica	55	4,25		59
Brazil	56	4,23		64

The Global Competitiveness Index 2009–2010 rankings and 2008–2009 comparisons				
	GCI 2009–2010			GCI 2008–2009
Mauritius	57	4,22		57
Hungary	58	4,22		62
Panama	59	4,21		58
Mexico	60	4,19		60
Turkey	61	4,16		63
Montenegro	62	4,16		65
Russian Federation	63	4,15		51
Romania	64	4,11		68
Uruguay	65	4,10		75
Botswana	66	4,08		56
Kazakhstan	67	4,08		66
Latvia	68	4,06		54
Colombia	69	4,05		74
Egypt	70	4,04		81
Greece	71	4,04		67
Croatia	72	4,03		61
Morocco	73	4,03		73
Namibia	74	4,03		80
Vietnam	75	4,03		70
Bulgaria	76	4,02		76
El Salvador	77	4,02		79
Peru	78	4,01		83
Sri Lanka	79	4,01		77
Guatemala	80	3,96		84
Gambia, The	81	3,96		87
Ukraine	82	3,95		72
Algeria	83	3,95		99
Macedonia, FYR	84	3,95		89
Argentina	85	3,91		88

Source: World Economic Forum, 2009

World Bank Doing Business 2010 report examines the competitiveness of several ways, namely:

- ✓ Starting a business;
- ✓ Construction authorization;
- ✓ Employment;

- ✓ Registering property;
- ✓ Obtaining Credit;
- ✓ Protecting the investment;
- ✓ Payment of fees;
- ✓ Foreign trade;
- ✓ Closing a business;

Romania's position in terms of these indicators is shown in the below table.

Table 5. The Romanian and the European competitiveness reflected in the World Bank Report

Economy	Ease of Doing Business Rank	Starting a Business	Dealing with Construction Permits	Employing Workers	Registering Property	Getting Credit	Protecting Investors	Paying Taxes	Trading Across Borders	Enforcing Contracts	Closing a Business
Georgia	1	1	1	1	1	9	7	9	5	10	19
Estonia	2	9	2	25	6	11	11	3	1	14	8
Lithuania	3	20	6	20	2	11	17	7	4	3	3
Latvia	4	13	9	21	13	1	11	5	3	2	15
Macedonia, FYR	5	2	14	9	14	11	3	1	9	19	22
Azerbaijan	6	5	18	3	4	4	3	15	25	6	13
Cyprus	7	7	8	13	15	20	17	2	2	24	1
Kyrgyz Republic	8	4	3	7	8	4	1	23	22	15	25
Armenia	9	6	7	10	3	11	17	22	16	18	6
Bulgaria	10	12	11	8	12	1	7	12	17	21	11
Slovenia	11	8	5	26	22	22	3	11	14	17	4
Romania	12	10	10	19	20	4	7	20	7	16	17
Belarus	13	3	4	2	5	25	22	27	18	1	10
Kazakhstan	14	17	16	5	9	11	11	8	27	8	7
Montenegro	15	18	19	6	24	11	6	19	8	26	5
Poland	16	23	21	11	19	4	7	21	6	20	14
Turkey	17	14	12	24	10	20	11	10	12	7	23
Albania	18	11	22	16	17	4	2	18	11	22	27
Serbia	19	15	23	14	21	1	15	17	13	23	21
Moldova	20	16	20	22	7	22	22	13	21	5	16
Croatia	21	21	17	27	23	18	26	4	15	13	12
Kosovo	22	27	24	4	16	11	27	6	19	27	2
Bosnia and Herzegovina	23	26	13	18	26	18	17	16	10	25	9

Economy	Ease of Doing Business Rank	Starting a Business	Dealing with Construction Permits	Employing Workers	Registering Property	Getting Credit	Protecting Investors	Paying Taxes	Trading Across Borders	Enforcing Contracts	Closing a Business
Russian Federation	24	22	27	17	11	22	17	14	23	4	18
Ukraine	25	24	26	12	27	9	22	26	20	11	26
Uzbekistan	26	19	15	15	25	26	25	25	24	12	24
Tajikistan	27	25	25	23	18	27	15	24	26	9	20

The dates refer to the states from Eastern Europe and Central Asia, and refer to the period June 2008 – May 2009.
Source: *www.doingbusiness.org*

According to the World Economic Forum (WEF), Romania, the second smallest in the EU on economic competitiveness, dropped one position, this year is the second smallest in the European Union on economic competitiveness ranking ahead only to Bulgaria, in a ranking led by Sweden.

In 2008, Romania ranked 25. According to the survey, more countries that joined the EU in 2004, such as Estonia, Slovenia and Czech Republic have surpassed many of the old Member States, implying that they are closer to the objectives of the Lisbon Treaty.

Among possible new Member States, Croatia and Montenegro have surpassed the most poorly placed countries, namely Poland, Italy, Romania and Bulgaria, while Turkey and Macedonia have better performance than the Bulgarian state.

Stack on top positions are Sweden, Finland, Denmark, Netherlands and Luxembourg. Germany is on 6 place, France on 8, UK on 9, while Spain is in position 18, and Italy only on 25. Between Eastern and Central Europe countries, best placed is Estonia, ranked 12, followed by Slovenia on 14 and Czech Republic on 15 positions. Hungary is ranked 21 and Poland 24. To achieve the ranking, the WEF has evaluated eight criteria included in the Lisbon Treaty, as creating an information society, developing a European area for innovation, research and development, completing the process of creating the single market and the construction of some industrial networks.

The remaining criteria are the creation of some efficient financial services, improving business environment, improve social inclusion and respectively, sustainable development. The analysis was conducted based on publicly available statistics and surveys conducted by the WEF.

C. 2011 forecasting

Romania has all chances to reach the region's sixth auto manufacturer by 2014, with a production of 520,000 units, after Russia, Turkey, Czech Republic, Poland and Slovakia, according to a survey conducted by PricewaterhouseCoopers (PwC). We anticipate a strong growth of Romanian automotive industry over the next five years, as recent investments in Craiova car plant will become fully operational and production capacity at the Pitesti plant will grow to meet increased demand for new car models launched. In other words, by 2014, Romania will produce 74.5% more vehicles compared to 2009 levels in a market where Automobile Dacia produces 98% of what is supplied.

In the first seven months of 2010, the Mioveni factory produced 219,641 vehicles compared to 4178 units in Craiova, produced the Americans of Ford and 15 trucks manufactured by Roman Brasov, according to Automotive Manufacturers and Importers Association (APIA). If it will be reached the production foresight, Romania will have the third fastest growth rate of auto production capacity of the countries of Central and Eastern Europe by 2014. The first place seems to be taken by Ukraine (242%) and Russia (235%). Of the total car production in January-July 2010, 89% of the vehicles went to export 194,523 units respectively. Of these, 190,329 units were manufactured by Automobile Dacia, Ford produced 4178 vehicles – that is everything that has been manufactured at Craiova - and Roman Brasov exported all 15 trucks produced in the first seven months. The success of Dacia has been completed by Duster, which in just a few months climbed to second place in terms of exports made at Pitesti plant, after Sandero.

The SUV Dacia production could reach over 120,000 units in 2011, with a daily pace of over 460 cars, against 260 at present. Automobile Dacia is actually first in the top 100 exporters in the first four months of the year, conducted by the National Association of Exporters and Importers in Romania.

Ford and Dacia-Renault are preparing the launch in 2011-2012, of the "new models made in Romania"'. Americans hopes that the new B-Max will be able to overthrow the rule of Dacia, which works on the new generation of Logan, code-named Citadine.

Both manufacturers are hoping to export part of production. Beyond the target data, mainly in the emerging countries, will be interesting to see how competition on the Romanian market will evolve.

Experts say that the battle between the two producers will be given mainly on price and consumption. Americans are hoping to convince Romanians of the usefulness of small cars in terms of traffic and insufficient parking. On the other hand, the French still relies on the need for space. Rear seat and spacious trunk were especially considered important advantages for which the Romanians chose Dacia to other car models, alongside with the convenable price.

It will be an interesting race, given that the general perception about the ideal car suffered significant changes. The car becomes less and less a measure of financial potency in front of the utility. The strong growth of service costs, of the price of fuel and already classical problems related to traffic and parking has led many Romanians to choose models of small class, small engines and low power consumption. On the other hand, the most powerful stimulus will be the price. The car of 5,000 euros will still represent a standard on internal expectations.

Dacia, from the 5,000 euro Citadine, to the sedan in Megane style

Logan is already old, at least for Western standards. From 2004 until now, engineers from Dacia have tried to embellish it, but overall, the car exceeded the ''moral'' age. If it weren't for the scrappage programs in Germany and France, production would have fallen dramatically.

The French from Dacia knew that since 3 years ago when they first began to draw sketches of the new Logan. They left it easy because, paradoxically, the crisis has helped Logan. The price of the car, sold through fleet renewal programs, was unbeatable, and sales have exceeded 1.25 million copies, a level above the most optimistic expectations.

Now, with the first exit signals, the French have stepped up preparations for the launch of the new model. ''They want to catch the new wave'' of the demand with a modern car in the style of Duster, cleaner and with a price as good as Logan.

The new model has long passed the phase of drawings and is in the process of pre-production. The 54 local suppliers and 134 foreign suppliers of Dacia already received orders for new components.

According to German newspaper journalists from Autobild, between 2012-2015, the French will produce eight new models in Romania and several sites facelift. The first model will be a sedan of the Renault Laguna dimensions, but at the price of the Megane, which will be released in spring 2012. A year later would be released new versions Logan and City Van, Logan Pick-up, Dacia MPV (mini-bus family car), Dacia Van LCV, and Sandero facelift.

For 2014, a German newspaper quoted sources provides the Duster Pickup launching and a face lift for the SUV. For 2015, Dacia plans will include the launch of the Dacia Citadine model of 5,000 euros, 3 doors, and the new Sandero.

Plans could be hastened by the international auto market recovery, and local Ford Romania strategy. Dacia Renault will not give up, certainly, the market share in front of the Ford.

Americans Strikes: B-Max at the price of Dacia

After taking over the plant in Craiova, Ford did not stay idly by. Although original plans have been turned upside down by the economic crisis, most intentions remain the same.

Ford is preparing to launch manufacturing line for the new B-Max, which requires investment between 300 and 500 million dollars, and to develop the production line of engines. Subsequently, would be built also other models, depending on market requirements and its development. Ford Romania, has already concluded contracts with 19-20 suppliers for the Craiova plant, and 7 of them have already started planning future construction of facilities for small class model.

Ford Romania will launch its first model produced solely in Craiova at the end of 2011, and the car will hit the market in 2012. It is possible for the car to reach but the showrooms earlier.

The battle with Dacia will be given on price, and the Americans know it. They search providers (such as Rombat or Elba) that to allow a price as low, close to Logan. If they will manage to keep the cost of at 6,000-7,000 euros, Ford will be a serious competitor for Dacia.

According to experts, Ford could produce 150,000 units of B-Max in 2012, and according to demand, production capacity could increase. And that especially because Americans see the future with optimism. According to Ford officials, Romanian car market will grow over the next five years, with 15% per year, while the number of cars per 1,000 population will reach 300 units, compared to 210 today.

D. Solutions to overpass the crisis by the automotive industry

It is true that the automotive sector is in a serious recession. Worldwide demand has decreased dramatically. Factories produce less or sometimes no produce at all. But the crisis could be the beginning of a new automobile era.

The car has over 100 years and probably even in the next 100 we can not miss it. Demand for a means of personal travel will return in next years and the factory production lines will be filled ever again. But perhaps the future will bring us something else. Not outside, but under the hood where were howling multi-cylinder engines could be replaced by a pleasant hum.

The latest studies in that field show that for the first time in 100 years is a real chance to impose solutions on the market and drive than other classic internal combustion engine. The future is of electric motors.

Therefore we believe that manufacturers that implement innovative technical solutions now, i.e. at the right the time comes, will have the best chance of getting out quickly from the crisis.

Classic engines are out. It is true that conventional engines will be our road companions for a long time to come and that from the exhaust pipe will go out further carbon dioxide, though increasingly less. Limits are imposed by international agreements, but the most severe are the EU regulations. So engineers are striving hard to find ecological solutions.

The biggest problem however is not necessarily the greenhouse gas, but the fuel. Still gasoline is pretty cheap, especially because of the crisis, but drivers will miss this times when oil price will rises, undoubtedly. The reason is simple: oil is a scarce resource, and after what bank accounts will not beat to zero – the demand will fuel the price spiral.

Searching for alternative solutions will not necessarily be determined by the noble goals of environmental protection, but more by the shirt is closer to our body. This could be observed in consumer behavior which last year preferred small cars with low consume not because of pollution, but because they became aware of the money worse than ever. So Smart, Fiat 500 and Renault Twingo became hits in sales, while models with more horsepower in the right sheet became rather decorative to car dealers. Frankly, what signal may be more obvious than the unexpectedly good sales of Smart brand in America, where only the bonnet was usually higher than all European cars? ...

Alternatives to conventional propulsion will dominate not very distant future and will ensure continuity of human mobility with the latest drying oil reservoir on the planet. Researchers now work on improving their power solution and, most importantly, on reducing costs. Currently not many people can afford an electric motor under the hood of the car: a KW/hour costs 1000 Euros; in addition there are other problems such as weight, distance, duration and frequency of loading supply cycles.

Changes will not be realized today for tomorrow. Systemically transformations from the auto industry will follow very slowly so that in 10 or 15 years we will go also on gasoline. But the passage, though long, will be one smooth. Already appeared and will continue to gain ground the hybrid models, and once the cost issue eliminated, the electrification trend will not be stopped.

Would be other opportunities. Biofuels are currently highly acclaimed by various circles, but still there will be no dilemma "in the tank or bowl" because the agricultural areas are limited. The solution that is currently the most successful is gas engines (LPG), but also those will be over at last. And the hydrogen ones are in the field of science fiction, already.

Auto industry in coming years will be marked by high *market concentration*. Alliances, mergers and cooperation's will expand and will give so much trouble to competition analysts. One of the most eloquent examples of this sense is the possible, extremely bad marriage of Daimler with BMW. But it is resulted from

undisputed facts: leading German manufacturers can not deal the economies of scale and advantages of domestic production of the concern VW/Porsche. But the story does not end here. BMW has already developed a partnership with Peugeot for the Mini brand, but Peugeot is already part of French concern PSA Peugeot-Citroen.

Another solution would be for example to *attract suppliers of parts*, e.g. their side. But it will be hard for that the newest technologies are already pawned in other models like the VW Phaeton, Audi A8, Bentley or Panamera. No one gives the bird in the hand for the bird bush. So, finally remain only the option of alternative technologies development (which by the way the Japanese are more advanced) to ensure long-term survival of concernes. Motors invented by Daimler and Benz, undoubtedly contributed to the progress of humanity and to the motorization of our dreams. But the future will take the deserved place the technical museums.

From our point of view, beyond the crisis, a significant impact on new car sales is old car sales boom and if you look at the figures published by DRPCIV, we see that in the last six months, were registered with 77% more old cars than new ones (183,000 vs. 104 000) and this has been possible primarily due to inconsistencies in the car tax legislation, last year.

In recent years, companies involved in this industry (manufacturers, suppliers, importers, dealers) have invested very much money in business development and now, due to lower demand, many of them see themselves in a position to close doors.

Because of these investments, Romania became a Mecca of parts manufacturers, auto industry directly generating 200,000 jobs and a turnover equivalent to 8% of GDP. Although this industry is one of strategic importance for Romania's economy, the Government did nothing to help it.

It is clear that if sales will not recover in coming months, the auto industry will enter in collapse in the sense that at least 25-30% of employees will become unemployed and suppliers will bankrupt on the ends.

Short-term solutions to exit from the crisis for the automotive industry in Romania:

1. "Rabla" program and release credits. Although is a good initiative the "Rabla" program will prove to be a fraction to a wooden leg if the Government will not increase the amount allocated to each car, from 3,800 lei to at least 4,500-5,000 lei. In addition, without no release of funding, the number of cars sold through this program will be very small since few people can pay with cash. Let us not forget "Rabla" program is mainly destined to those with low incomes.

2. First registration fee. This fee will be determined in accordance with EU rules and to a level that will make prohibitive the registration of cars older than 7-8 years.

3. Government support for local producers Dacia and Ford, of course within the limits of agreements with the EU. The success that Dacia had in Germany was because of the "Rabla" program, and Ford has done it's business plans over two years ago, when in Europe were not talking about the crisis and in the new economic conditions, it is impossible that production plans not to be altered.

In the best case, the car market will equal the 2007 level until 2012 and if the Government will not help now the companies operating in this area, it could be that in coming years both, Ford and Dacia to import most of components they need. And then, the two producers' exports will not contribute with anything to the favorable balance of trade.

IV. CONCLUSIONS

If the development of some industrial branches can be achieved through the punctual effort of some investors or investor groups, and their efforts to start a business in areas such as trade, services, food industry or even tourism is not a particularly one, where in case of the large-scale industry things are more complicated and the responsibility for results and consequences is of some structures positioned at the state or even international level. These consequences are diverse, from social, continuing with those on other branches and sub-branches, political, military, environmental, etc. They can not be made at lower levels of society because it affects large swathes of people and the entire country economy on long term, but forecasted and controlled with uniform measures, aiming long horizons of time, so by strategy at the state or group of states level.

The very structure of important producers from the branch of the automotive industry give a picture of long-term investments and current expenditure, otherwise strictly necessary to ensure an acceptable competitive level of their products can not be covered only in complex multinational, powerful groups whose policy dictates the states policy.

Expenditure on research, implementation and continuous improvement of their quality systems with marketing, is justified only when the results obtained are widely used by large numbers of units, and the turnover and the profit recorded covers, in conditions of return, these expenses.

Obviously, in these circumstances, the chance to win even narrower geographic segments of the car market, equipment and industrial equipment of some Romanian companies that act alone is extremely low. And not because of the technical level of the equipment or human resources, but especially because of the de-capitalization that makes impossible the refurbishment, research or efficient promoting effort.

We tried to show in this paper that there are favorable conditions that could lead to a Romanian car industry recovery. First, geographical position and political orientation towards a smart integration in the structures in the area, as well as participation in a concerted action for recovery of the states that will shape up the European Union, open ample opportunity to conquer the European market segments and beyond. We support this view for several reasons, among which we mention our country's position as a shipping corridor that link through the Danube and Rhine, the south-eastern Europe with its northwest, making the transport of raw materials and finished products, features of automobile industry, to be within reasonable cost as well as the existence of high potential of units steel industry strategically located for processing ores from Russia. Also, the trend of the last 20 years show that the developed countries in Western and Central Europe are orientating towards the production of high-tech equipment, particularly developing the design part and calling for proper equipment, from suppliers in other areas advantaged by low labor force price. According to some specialists,

We consider that if at the current historical moment is realized, through the infusion of capital and technology, the launching of new sub-branches from that class, positive consequences will occur on all levels. This integration into the European economy creates economic and social conditions of developing countries in areas of bankruptcy, which can not financially support the lack of economic potential, support and develop scientific and technological research, relieve the state budget by a series of social spending and increase demand for services and the ability to cover their value.

The use by the Romania automobile companies of modern management methods, specific to classes of activities (such as technical and material supply) or the company whole system has some peculiarities generated by the current state of this sub-branches as well as of the strategic guidelines (where they exist) of certain sub-branches.

We also have in mind in equal measure the need to adapt the methods to specific items related to socio-political system and organizational culture as well as restructuring (sometimes painful and costly) the system operating in the Romanian industrial units and their philosophy of life, such as implementation in our country of a functioning market economy or privatization of former large establishments.

REFERENCES

Aitken R.A., Robertson D.M., Johnson D.T. – *„Personal Property Financing: Manufactured Housing and Auto Finance",* Business Lawyer, Volume: 65, Issue: 2, Pages: 621-628, 2010.

Anghelache C. – *„Romania 2009. Economic state in profound crisis",* Economic Publishing House, Bucharest, 2009.

National Association of Exporters and Importers from Romania, - „Romania – member country of the European Union. Challenges of the exterior trade", Economic Publishing House, 2008.

Barney J. – „Strategic management and competitive advantage. Concepts and cases", Prentice Hall, Upper Saddle River, 2006.

Campbell J., Pedersen O. **– „***Institutional competitiveness in the global economy: Denmark, the United States, and the varieties of capitalism"*, Regulation & Governance, Volume 1, Issue 3, Date: September 2007.

Craig B.J., Dibrell C., Davis D.S. – *"Leveraging Family-Based Brand Identity to Enhance Firm Competitiveness and Performance in Family Businesses",* Journal of Small Business Management, Volume 46, Issue 3, July 2008.

El Ouardighi F., Kim B. –*„Supply quality management with wholesale price and revenue-sharing contracts under horizontal competition",* European Journal of Operational Research, Volume: 206, Issue: 2, Pages: 329-340, 2010.

Hontou V., Diakoulaki D., Papagiannakis L. – *„A multicriterion classification approach for assessing the impact of environmental policies on the competitiveness of firms*", Corporate Social Responsibility and Environmental Management, Volume 14, Issue 1, Date: February 2007.

Gavrilă I., Gavrilă T. – *„Competitiveness and competitional environment. Promoting and protecting competition in E.U."*, Economic Publishing House, 2008.

Lianu C. – "*Management of export strategies at national and regional level*", Economic Publishing House, Bucharest, 2008.

Lei-Yu Wu, Chun-Ju Wang, Cheng-Ping Chen, Lee-Yun Pan - *„Internal Resources, External Network, and Competitiveness during the Growth Stage*", Entrepreneurship Theory and Practice, Volume 32, Issue 3, Date: May 2008.

Marcussen M., Kaspersen L. – *„Globalization and institutional competitiveness*", Regulation & Governance, Volume 1, Issue 3, Date: September 2007.

Macduffie Jp., Fujimoto T. – *„Why Dinosaurs Will Keep Ruling the Auto Industry",* Harvard Business Review, Volume: 88, Issue: 6, Pages: 23-25, 2010.

Miao Q., Wang X., Ge BS. – *„Empirical Research on Relationship between International Entrepreneurial Opportunities and Performance of Automotive Enterprise",* International Conference on Management Science & Engineering (16th), Vols I and II, Conference Proceedings, Pages: 1644-1649, 2009.

Pilegaard M., Moroz PW. Neergaard H. – *„An Auto-Ethnographic Perspective on Academic Entrepreneurship: Implications for Research in the Social Sciences and Humanities",* Academy of Management Perspectives, Volume: 24, Issue: 1, Pages: 46-61, 2010.

PORTER M. – *„About competition",* Meteor Press Publishing House, Bucharest, 2008.

Rugman A., Collins S. – „*International business*", 5TH Edition, Prentice Hall, 2009.

WEI-PING WU - „*Dimensions of Social Capital and Firm Competitiveness Improvement: The Mediating Role of Information Sharing*", Journal of Management Studies, Volume 45, Issue 1, Date: January 2008.

Zinnes C., Eilat Y., Sachs J. – "*Benchmarking competitiveness in transition economies*", Economics of Transition, Volume 9, Issue 2, July 2001.

*** - "Romania's Statistic Annuary", 2000-2009, Institutional Institute of Statistic;

*** - Sectorial Program "Increasing Economic Competitiveness", Romania's Government, 2007;

*** - Cross-Country Study on External Competitiveness: Bulgaria, Croatia, Romania, European Institute of Romania, 2005;

*** - EU Policy in the area of competition and the consumer, European Commission, Luxemburg, 2005.

*** - World Bank Report „Doing Business 2010", http://www.doingbusiness.org/ documents/fullreport/2009/DB09_Full_Report.pdf

*** - World Economic Forum, „Global Competitiveness Report", 2010, http://www.weforum.org/ documents/GCR0809/index.html

http://www.acarom.ro

http://www.acea.com

http://www.apia.ro

http://www.competition.ro/

http://www.daciagroup.com

http://www.eurostat.ec.europa.eu

http://www.insse.ro