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GENDER OCCUPATIONAL IDENTITY IN TRANSITION ECONOMIES: EVIDENCE FROM ROMANIA AND SLOVENIA

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Abstract. This paper aims to study how socio-economic factors, cultural predispositions and educational opportunities influence the gender occupational identity in transition economies of Romania and Slovenia. Females in both countries are still in unfavourable position and the process towards market economy has not solved the issue. Historical effects of communism and declarative equality in Central and Eastern European countries resulted in higher rate of female employees in industrial sectors. However, content equality measured by number of female legislators, senior officials, managers and female members of parliament, gender pay gap and contributing family workers indicate that real equality has not yet been reached. Due to its specific economic development, the study suggests that lower occupational division is present in Romania than in Slovenia. The study suggests further that higher economic development results in higher gender occupational specialisation.

JEL Classification: D 63, E 24, J 16, J 71

Keywords: gender occupational identity, economic development, occupational specialisation, Romania, Slovenia

1. Introduction

This paper aims to study clichés of sex-type occupations, patriarchally-prescribed positions or gender job preferences in transition economies. Unfortunately, such clichés are still present in our society. Therefore, the issue is not whether there is any general gender occupational identity present but how strong is it? The prevailing stereotype that men are providers of means and that women should take care of home is still deeply routed in our sub-consciousness, even more in transition countries of Central and Eastern Europe due to past political and social reasons. Declarative equality was one of the underlying principles of communist system in which the importance of allegiance to the state (or political party) was placed above that of the family whereas family was seen

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merely as an economic unit supporting state objectives (Metcalf and Afanassieva, 2005). According to Metcalfe and Afanassieva (2005) the process of women integration in the labour market was supported ideologically by equating employment with emancipation and reinforced by the labour-intensive economy. The consequence was high rate of women labour market participation and other generous working arrangements concerning maternity and leave allowances. Besides declarative equality, contextual female equality did not follow political one. According to Prodan and Manolescu (2006) in real life men dominated in government, political party and state-owned enterprises. There were the quotas for representation of women in elected bodies, but this was superficial, as the representatives were appointed, and the bodies were more or less powerless. Gender equality under communism went unfulfilled, as did the assurance of real power and control (Prodan and Manolescu, 2006).

Nowadays, the employees in transition economies are increasingly exposed to demands for flexibility and mobility at work and are challenged to deal with, and respond to, continuous changes in the work context (Kirpal, 2004). However, such claims for adjusting to these changes require specific learning and work attitudes that enable the individuals to engage actively (and positively) in work processes in order to ensure their successful integration into different work settings and the labour market as a whole leads to division to typical male and typical female occupations (Kirpal, 2004). As a consequence, women tend to enter jobs that are labelled as "female-type" and perceived as best suited for women, which can be attributed also to their type of education, lower occupational aspirations or lower commitment to investing in their careers (Danziger and Eden, 2007). However, this division is fading away at least in some occupations.

Gender occupational identity is also influenced by competencies systems, especially it's individual dimension. Competencies have been broadly researched (Mansfield, 1999; Boyatzis, 1982; Cheetham and Chivers, 1998; Miller et al., 2001). Common understanding of competencies system is that there is a range of factors which differentiate successful performance from less successful performance, such as knowledge, skills, experiences, personal qualities, motives, and behavioural characteristic. According to Kovač and Bertonec (2007) competencies can be divided into cognitive (knowledge, skills), behavioural (affection) and conative (volition). Conative side represents inborn part of human mind. Researches in question of differences in conative competencies are still in infancy, but offers a promising field to investigate question of gender occupational identity.

This paper aims to study two transition economies, Romania and Slovenia, from the perspective of their gender occupational identity and whether some shift according to transition process can be observed.

2. Gender differences according to transition process in Romania and Slovenia

The appropriate conduct of males and females in society that foster gender differences in social behaviour is examined by social role theory (Eagly, 1987; Eagly et al., 2000). Wingfield et al. (2000) claim that men aspire to enter male-dominated occupations seen as calling for "masculine" (i.e., agentic) personal qualities, whereas women aspire to enter feminine occupations seen as calling for "feminine" (i.e., communal) personal qualities as a result of gender role

socialisation process. That process influences the social status, payments, employment rate and education level.

Entry of women labour force diminished men' role as sole provider in the family. However, the role of good provider still matters (Christiansen and Palkovitz, 2001). Furthermore, according to Gaylin (1992) work is defined as a site of homo-social reproduction, where men test and prove their masculinity.

Nevertheless, in communist countries declarative equality existed, work remained a male space, where competition took place and masculine identity was formed. On the other hand, it meant reinforcement of gender roles. Kimmel (2004) reports that men got more promotions in shorter time, with higher pay, and with more autonomy, authority and satisfaction.

Human capital theory claims that gender differences in occupational aspirations originate in rational decisions by the family unit regarding the division of labour that will maximise the welfare of the family unit as a whole (Becker, 2001; Hakim, 1996). The gender-based division of labour is originated in biological differences. Women have a greater share in developing the family's human capital because they devote more time to the family in childbirth and childrearing (Danziger and Eden, 2007). But whether women inferiority in the labour market is due to biological factors or discrimination, according to Danziger and Eden (2007), the apparent gender-based division of labour serves the welfare of the family unit. However, because both men and women found refuge as citizens in the home, the household and family became the locus of resistance to state power in the communist countries and was not perceived as a locus of gender conflict (Metcalfe and Afanassieva, 2005).

The influence of the political, economic, historical and social conditions in communist countries were reflected in labour market and gender occupational identity. Industrialisation process in work-extensive industries took place. Industrialisation was politically promoted in most of communist countries ahead of and at cost of farming sector. A major shift towards leaving the rural areas and movement to cities, where they were offered jobs and basic accommodation was forced by authorities. According to dogma that work was prized above capital and property, the process was destroying farming sector and caused gender division of social role and shifted towards increased employment rate of female.

Romania and Slovenia started transition process on the basis of different economic systems. Slovenia being part of former Yugoslavia practiced self management system, which incorporated many elements of market economy. Romania, on the other hand, performed more centrally planned economy. Besides different economic development, some other differences existed: cultural, religion (Roman Catholicism in Slovenia and predominantly Eastern Orthodox Church in Romania) which were influential factors in gender occupational differences. However, both countries started transition process violently (overthrow in Romania and civil war in former Yugoslavia). Such start of transition process to market economy was the beginning of totally new political and economic system with many obstacles and rather long term changes due to the reason that it was (r)evolutionary process which posed many questions for 'transition countries' while moving from centrally planned economic structures to market economies (EBRD, 1999).

Slovenia started transition process with the loss of previous Yugoslav market in 1991. Slovenian companies had rather favourable positions in their

domestic market. The Slovenian economy has constantly increased its integration with the international economic environment but open confrontation with market economy in export markets resulted with a crisis which had a strong impact on work force reduction. According to Žnidaršič Kranjc (1993) bankruptcies were many times planned. More than half of them (55%) were initiated in order to get rid of surplus labour in companies (Žnidaršič Kranjc, 1993, 179).

Transition in Romania, while implementing a free market economy model, has brought profound changes to government, society, and individuals (Lupu and Mitocaru, 2006). According to Aionaei (2006) Romanians have strong cultural identity which represents a powerful point of reference how they perceive themselves. Similarly to Slovenia, different cultural influences, political, and economical pressures from outside as well as from inside the country, impact Romanian history. Part of Romanian history is characterised by Ottoman occupation, Russian Empire influence, Austro-Hungarian Empire pressure and Latin zone recognition (Aionaei, 2006). Since 1989 major restructuring and liberalisation with introducing new socio-economic system, based on private enterprise has been successfully completed.

Different economic bases have to be considered for Romania and Slovenia. Table 1 shows GDP, GDP growth rate and annual change in consumer price index for both countries.

Table 1: Economic indicators of Slovenia and Romania

Country	GDP		GDP per capita				Average annual change in consumer price index (%)	
	US\$ billions 2005	US\$ billions 2005	US\$ 2005	2005 PPP US\$ ^a	Annual growth rate (%)		1990-2005	2004-2005
					1975-2005	1990-2005		
Slovenia	34,4	44.6	17.173	22.273	3,2 ^b	3,2	9,2	2,5
Romania	98,6	196.0	4.556	9.060	-0,3 ^b	1,6	66,5	9

a. GDP values expressed in 2005 constant p

b. Data refer to a period shorter than specific

Source: Human development reports, 2007

Overall economic situation has been influencing the employment rate in both countries. Table 2 exhibits unemployment rates by gender in both transition economies, Romania and Slovenia. Data are derived from Eurostat (2008) which calculates unemployment rates for individual Member States and EU 27. The unemployment rate is the number of people aged between 15 and 74 that are unemployed as a percentage of total labour force. The labour force is the number of people that are employed and unemployed (Eurostat, 2008).

Table 2: Unemployment rates by gender

Year		EU 27 (%)	Slovenia (%)	Romania (%)
2000	<i>Total</i>	9,2	6,9	7,0
	Male	8,2	6,8	7,5
	Female	10,6	7,1	6,4
2001	<i>Total</i>	8,6	5,7	6,6
	Male	7,7	5,4	7,0
	Female	9,6	6,0	6,0
2002	<i>Total</i>	8,9	5,9	8,1
	Male	8,2	5,6	8,6
	Female	9,8	6,3	7,6
2003	<i>Total</i>	9,0	6,5	6,9
	Male	8,4	6,0	7,4
	Female	9,8	7,0	6,4
2004	<i>Total</i>	9,2	6,0	7,7
	Male	8,6	5,7	9,0
	Female	9,9	6,4	6,2
2005	<i>Total</i>	8,9	6,5	7,2
	Male	8,3	6,1	7,8
	Female	9,7	7,0	6,4
2006	<i>Total</i>	8,2	6,0	7,3
	Male	7,6	4,9	8,2
	Female	9,0	7,2	6,1

Source: Eurostat, 2008

Unemployment rates in Romania and Slovenia in the year 2006 as total were lower than in EU 27. However, in EU 27 and in Slovenia the female unemployment rate was higher than in Romania. In Romania, on the other hand, the unemployment rate of males is higher than in EU 27 and almost twice as high as in Slovenia.

3. Gender differences in labour markets of Romania and Slovenia

There are many factors which affect gender occupational inequality such as the type of education, lower occupational aspirations or lower commitment to investing in their careers (Kraus, 2002). Education, formal or non-formal, is essential for acquiring the competencies. Cognitive and behavioural competencies can namely be learned (Kovač and Bertoneclj, 2007). Female competitiveness can be increased with mastering competencies which are essential for certain

occupations. Therefore, their education should be fostered. Tables 3 and 4 show participation in the year 2005 in formal and non-formal education by gender in EU 27 and separately in Romania and Slovenia.

Table 3: Participation in non-formal education in 2005

Country	Total		Male		Female	
	Thousands	%	Thousands	%	Thousands	%
EU 27	40.201	16,5	19.973	16,5	20.228	16,4
Slovenia	263	23,5	123	21,8	140	25,2
Romania	74	0,6	31	0,5	43	0,7

Source: Eurostat, 2005

Table 4: Participation in formal education in 2005

Country	Total		Male		Female	
	Thousands	%	Thousands	%	Thousands	%
EU 27	10.887	4,5	4.880	4,0	6.007	4,9
Slovenia	85	7,6	40	7,0	45	8,2
Romania	159	1,4	69	1,2	90	1,5

Source: Eurostat, 2005

Different levels of participation in formal and non-formal education can be observed in compared countries. Slovenia has a high level of participation of female population in education. On the other hand, Romania has a much lower level of participation in both forms of education. It is interesting that in both observed countries, Romania and Slovenia, female rate of education is higher than male. That implies that apart from uneven career opportunities, even if education qualifications are similar (International Labour Organization, 1997), females are still in unfavourable position in their occupational career building. In EU 27 groups participation level of females and males are practically even.

Exploring employment rate of persons aged between 15 and 64 as a share of the total population (see Table 4) reveals that less females are employed than males. However, number of employed female persons compared with total female population is increasing year by year.

Table: 5: Employed persons aged 15 - 64 as a share of the total population

Year		EU 27	Slovenia	Romania
2002	Total	62,3	63,4	57,6 ^b
	Male	70,3	68,2	63,6
	Female	54,4	58,6	51,8
2003	Total	62,5	57,6	62,6
	Male	70,3	67,4	63,8
	Female	54,8	57,6	51,5
2004	Total	62,9	57,7	65,3
	Male	70,3	70,0	63,4
	Female	55,4	60,5	52,1
2005	Total	63,4 ^p	57,6	66,0
	Male	70,8	70,4	63,7
	Female	56,2	61,3	51,5
2006	Total	64,4 ^p	58,8	66,6
	Male	71,6	71,1	64,6
	Female	57,2	61,8	53,0

b- Break in series

p- Provisional value

Source: Eurostat , 2007

Hofstede (2001) develops a model that identifies four primary dimensions to assist in differentiating cultures: Power Distance - PDI, Individualism - IDV, Masculinity - MAS, and Uncertainty Avoidance – UAI. Later on he adds Long-term Orientation – LTO. These five dimensions can be correlated with other country, cultural, and religious paradigms.

Hofstede (2008) defines these dimensions as follows:

- Power Distance Index (PDI) is the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally.
- Individualism (IDV) on the one side versus its opposite, collectivism is the degree to which individuals are integrated into groups.
- Masculinity (MAS) versus its opposite, femininity, refers to the distribution of roles between the genders which is a fundamental issue for any society to which a range of solutions are found. The IBM studies reveals that (a) women's values differ less among societies than men's values; (b) men's values from one country to another contain a dimension from very assertive and competitive and maximally different from women's values on the one side, to modest and caring and similar to women's values on the other. The assertive

pole has been called 'masculine' and the modest, caring pole 'feminine'. The women in feminine countries have the same modest, caring values as the men; in the masculine countries they are somewhat assertive and competitive, but not as much as the men, so that these countries show a gap between men's values and women's values.

- Uncertainty Avoidance Index (UAI) deals with a society's tolerance for uncertainty and ambiguity. It indicates to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations.
- Long-Term Orientation (LTO) versus short-term orientation describes values associated with Long Term Orientation are thrift and perseverance; values associated with Short Term Orientation are respect for tradition, fulfilling social obligations, and protecting one's 'face'.

Gender occupational identity comparison is made between Romania, Slovenia, some EU countries and the U.S. (see Table 5).

Table: 6: Geert Hofstede™ Cultural Dimensions

	PDI	UAI	IDV	MAS	LTO
Slovenia*	71	88	27	19	
Romania**	90	30	42	90	
Germany	35	67	66	65	31
Italy	50	76	70	75	
France	68	71	43	86	
United Kingdom	35	89	66	35	25
USA	40	46	91	62	

* Estimated values

** Data were collected from Zagoršek et al. (2004)

It can be observed that Romania has higher PDI dimension than Slovenia (and all other studied countries). Romanians tend to accept centralised power and depend heavily on superiors for structure and direction (Aioanei, 2006). Slovenia has similarly to United Kingdom the highest UAI dimension meaning that employees are tolerant to uncertainty situations. On the other hand, Romanians exhibits low tolerance for uncertainty, and are less comfortable with risk taking and nonconformist behaviour. According to Aioanei (2006) authoritative decision-making behaviour is therefore preferable by most subordinates. It can be attributed to the strengths of traditionalism in Romania. Slovenia is highly collective oriented (most of all studied countries). Employees feel safer in the group. Communist period probably left some collectivistic inclination in both countries. Masculinity is most expressed in Romania and least in Slovenia, where emancipation process seems

to be the strongest. It could be claimed that feminine influence in Slovenia is very high. It is obviously not without effect on employment rate (see Table 4), on participation in education (Table 3 and 4), and annual earnings, which shows that in Slovenia the difference between males and females mean annual earnings is the lowest.

A good provider is regarded as a performance of manliness and masculinity (Bernard, 1981). Losing a job therefore means not only loss of income, but represents a loss of an important role as a breadwinner and a critical part of masculinity (Rubin, 1994). According to Gould (1974) the size of a pay-check becomes a measure of sexiness, virility, manliness, strength and masculinity. In the following table the mean annual earnings and differences between male and female group are presented

Table 7: Mean annual earnings by gender in private households with employed persons (except agriculture and fishing)

	Total (000 €)	Males (000 €)	% of total	Females (000 €)	% of total
EU 25	27.830,3	31.321,4	112,5	22.801,36	81,9
Romania	2.318,0	2.511,0	108,3	2.097,39	90,4
Slovenia	12.394,6	12.756,5	102,9	11.963,83	96,5

Source: Eurostat, 2002

Gender pay gap is studied and shown in Table 7. The gender pay gap is customarily defined as the difference between average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. The gender pay gap is based on several data sources, including the European Community Household Panel (ECHP), the EU Survey on Income and Living Conditions (EU-SILC) and national sources. The target population consists of all paid employees aged 16-64 that are 'at work 15+ hours per week'.

Table 8: Gender pay gap in 2002

	2000	2001	2002	2003	2004	2005	2006
EU	16 ^s	16 ^s	16 ^s	15 ^s	15 ^s	15 ^s	:
Romania	17	18	17	18	14 ^b	13	10
Slovenia	12	11	9	7 ^p	8 ^p	8 ^p	8 ^p

b Break in series

s Eurostat estimate

p Provisional value

Source: Eurostat, 2002

Similarly as mean annual earnings, the gender pay gap reveals the lowest difference between male and female hourly earnings in Slovenia with falling trend. In EU27 group it is stable, thought in Romania it was the highest till year 2003 but in recent few years it is lower than in EU 27 countries with the highest trend of falling, bearing in mind that values are provisional.

Human development rank (HDI), gender empowerment measure (GEM), ratio of seats in parliament held by women, ratio of female legislators, senior officials and managers, and ratio of female professional and technical workers is investigated in some developed countries and two transition economies of Romania and Slovenia (see Table 8).

Table 9: Gender empowerment measure

HDI rank	Country	Gender empowerment measure (GEM)		Seats in parliament held by women ^a	Female legislators, senior officials and managers ^b	Female professional and technical workers ^b
		Rank	Value	(% of total)	(% of total)	(% of total)
10	France	18	0,718	13,9	37	47
12	U.S.	15	0,762	16,3	42	56
16	U.K.	14	0,783	19,3	34	47
20	Italy	21	0,693	16,1	32	46
22	Germany	9	0,831	30,6	37	50
27	Slovenia	41	0,611	10,8	33	57
60	Romania	68	0,497	10,7	29	57

^a. Data are as of 31 May 2007, unless otherwise specified. Where there are lower and upper houses, data refer to the weighted average of women's shares of seats in both houses.

^b. Data refer to the most recent year available between 1994 and 2005. Estimates for countries that have implemented the International Standard Classification of Occupations (ISCO-88) are not strictly comparable with those for countries using the previous classification (ISCO-68).

Source: UNDP, Human development reports, 2007

Romania and Slovenia lag behind in ratio of female seats in parliament, legislators, senior officials and managers. However, ratio of female professional and technical workers is higher than in other studied EU countries. Investigation of female economic activity and employment by economic activity in agriculture, industry and services reveals that less females than males are involved in economic activity. It is observed that in Romania almost 33% of all females are involved in agriculture economic activity, thought male closely follows with 31%. Study of gender ratio of employees in the industrial sector reveals that ratio of females in Romania and Slovenia is higher than in other observed countries. It is just the opposite in services sector. Involvement of female employees in services sector in other studied countries is a great deal higher than in Romania and Slovenia.

Gender occupational division is the lowest in Romania. Contributing family workers ratio reveals that in all studied countries women contribute more in

families. Ratio difference between men and women family contributors is the highest in Germany, Romania follows closely.

Table 10: Gender economic activity and employment by economic activity in agriculture, industry and services, and contributing family workers

		Country	France	United States	United Kingdom	Italy	Germany	Slovenia	Romania
Female economic activity (aged 15 and older)	HDI rank		10	12	16	20	22	27	60
	Rate (%) 2005		48,2	59,6	55,2	37,4	50,8	53,6	50,1
	Index (1990=100) 2005		105	105	104	104	114	99	94
	As % of male rate		79	82	80	62	77	80	80
Employment by economic activity ^a (%)	Agriculture	Women 1995-2005 ^b	3	1	1	3	2	9	33
		Men 1995-2005 ^b	5	2	2	5	3	9	31
	Industry	Women 1995-2005 ^b	12	10	9	18	16	25	25
		Men 1995-2005 ^b	35	30	33	39	41	47	35
	Services	Women 1995-2005 ^b	84	90	90	79	82	65	42
		Men 1995-2005 ^b	60	68	65	56	56	43	34
Contributing family workers	Women 1995-2005 ^b	..	62	60	54	76	58	70	
	Men 1995-2005 ^b	..	38	40	46	24	42	30	

NOTES

Because of limitations in the data, comparisons of labour statistics over time and across countries should be made with caution. For detailed notes on the data, see ILO 2005.

a. The percentage shares of employment by economic activity may not sum to 100 because of rounding or the omission of activities not classified.

b. Data refer to the most recent year available during the period specified.

b. Data refer to the most recent year available during the period specified.

Source: UNDP, Human development reports, 2007

4. Conclusions

Different cultural background, religion, communist regime, economic system and transition process have influenced gender occupational identity in Romania and Slovenia. Communist paradigm enforced domination of work over capital and declarative equality. One of consequences of this paradigm is women's equal role in economic production alongside men. Economic progress, reinforced by the labour-intensive economy and allegiance to the state was placed above that of the family (Metcalf, Afanassieva, 2005). Declaratively emancipation was equating with employment.

Process of feminisation of occupation and emancipation and economic independence as important part of it, besides civil rights opens question of family identity. High rate of femininity in Slovenia is intuitively not without influence on family. Role of male and female is changing. It is a process which can be harmonised up to certain level. However, maternity at least in early child age will have its biological effect whatever family working arrangements will be. It is a question of further research if femininity in Slovenia means harmonisation of relationships or destruction of family life.

However, levelling gender contribution of family differs from country to country. By all means, females in transition economies of Romania and Slovenia were burdened more than in market economies. Transition process has as a consequence increased female unemployment rate, especially in Romania. It is indicating that increase of employment discrimination of women in post-socialist work organisation is continuing. On the other hand, it could be attributed to market crisis and bankruptcies of socialistic labour intensive companies, where female have been major labour force.

Gender occupational division is the lowest in Romania as it depends on the level of development and Romania is the least developed economy in studied sample of EU countries. It can be concluded that higher economic development means higher gender occupational specialisation. Low gender division in Romania could also be attributed to historical reasons with declarative equal role of females and males in economic production and labour intensive industry.

Annual mean earnings and gender pay gap remains; however, transition processes in Romania and Slovenia shows declining trend. Being the most expressed in Romania and the least in Slovenia, it just reinforces above mentioned femininity problem of Slovene society.

However, transition process in CEE countries has not stopped the increase in employment discrimination of women and equalised gender career opportunities. All observed ratios (unemployment rate, education rate, gender difference in earnings, employment by economic activity, contributing family workers) lead to the conclusion that gender occupational differences remain firmly anchored in both studied transition economies, Romania and Slovenia. Hence, much need to be done in order to improve the female status in both countries in the future.

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A THREE WAY ANALYSIS OF THE ORGANIZATIONAL LEARNING CHARACTERISTICS OF A ROMANIAN UNIVERSITY

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Abstract. The paper applies three-way analysis (Kroonenberg, 1983, 2008) to the sets of components of organizational learning process in a Romanian university, by questioning 20 teaching and research staff. The study examines the differences in identifying the organizational learning characteristics between senior and junior staff, and between people holding a managerial position and the rest of the academic staff. The preferences for one or another of the components – organizational learning, individual learning, and organizational conditions are being underlined and discussed, based on the data collected from a Romanian economic university.

JEL Classification: C42, I 23

Keywords: organizational learning, university management, three-way analysis

1. Insights into Organizational Learning

Individual learning is defined (Novarese and Lanteri, 2007; Nelson, 2005; Morris and Moore, 2000) as the process of building mental models of increasing complexity (Halford, 1993; Johnson-Laird, 1983) which organize individual experience, at the same time going beyond it. Mental models (Johnson-Laird, 1991, 1983; Sein and Bostrom, 1989) are conceptual representations by which we understand the systems we live in and which guide our actions within these systems. According to Mumford and Strange (2002, 2005), mental models can be either descriptive, encoding declarative knowledge, theories of the world (Bucciarelli, 2007), or prescriptive, showing a path of action. These later models include (Besnard, Greathead, and Baxter, 2004) the knowledge one needs for achieving a certain goal, and data added from the environment. Or, following Schnotz and Bannert (2003), the phase of model construction, from the goal-oriented knowledge, is combined with the model inspection, from the point of view of the fitness of the model to the environment. Still, in lack of this relation to the environment, tacit mental models exist in our mind, without us being aware of their existence, or of their behavioural effects (Senge, 1994, 1990). Although the map is

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not the territory (Korzybski, 1941), these models give functional representations of the world, on which most of our decisions and actions are based.

The definitions of organizational learning (Murray and Donegan, 2003; Jones, 2000; Marchand et al., 2000; Argote, 1999; Morgan, 1997; Dodgson, 1993; Kim, 1993; Huber, 1991; March, 1991; Simon, 1991; Senge, 1990; Levitt and March, 1988; Fiol and Lyles, 1985; Morgan and Ramirez, 1983; Argyris and Schön, 1978) refer to organizational performance improvement, due to changes in the organizational conditions, generated by individual learning. Organizational learning is, thus, connected to individual learning, and to its mental representations.

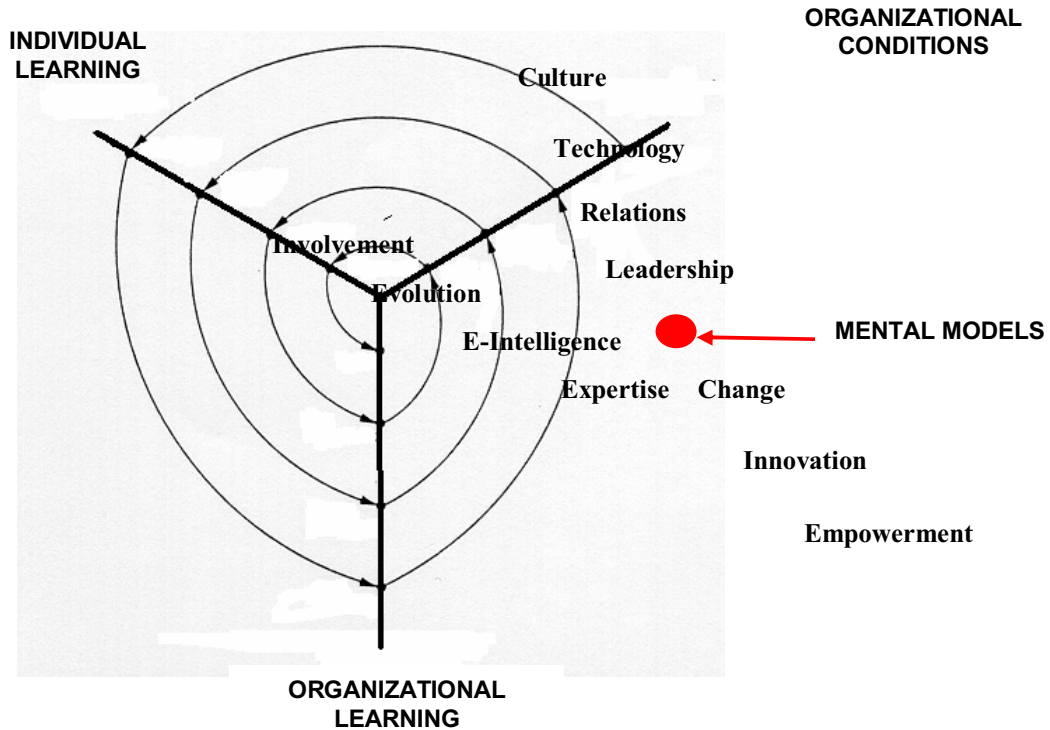
Mental models are mentioned in Senge's (1990) major work on organizational learning as a prerequisite of obtaining the synergy needed for learning to become operational. In order to enable organizational learning, models have to be dynamic, probabilistic, and strategic. Dynamic models (Frederiksen, White and Gutwill, 1999) change and update themselves on a continuous basis, keeping the organization fit for internal and external challenges. The faster the organization processes information, the more dynamic its mental models are, and vice versa. Probabilistic mental models express the organization's confidence in a certain situation, or in a certain outcome. The specific situation the organization is confronted with is examined in a larger frame (Gigerenzer, Hoffrage, Kleinböling, 1991), in a class of reference (Brunswik, 1943), and a decision is taken, inductively, based on the confidence level of the considered class. Strategic mental models (Amason, 1996) are an effect of strategic conversation (Albrecht, 2005) within the organization.

Mental models are, then, the point of synthesis of individual learning, organizational conditions, and organizational learning, which are arranged in the shape of a Y, as we propose in Figure 1:

As seen in the figure, there are four organizational conditions which influence individual learning, in the **CTRL** model we propose:

- a) culture;
- b) technology;
- c) relations;
- d) leadership.

Figure 1. Organizational Interrelations



- a) **Culture.** Organizational culture consists of the basic values and assumptions individuals in an organization hold, and which unconsciously guides their behaviour (Schein, 1985). In this way, organizational culture affects, insidiously, the mental models of individuals, and determines, thus, the way the organization learns (Mahler, 1997). Hofstede (1980, p. 260) states that culture is “the collective programming of the mind which distinguishes the members of one human group from another”. In other words, culture resides in-depth, becoming apparent by means of the signifiers of culture (Trice and Beyer, 1993), the symbols and artifacts. According to Ke and Wei (2007), organizational culture is a social glue that enables individuals to learn together, in social networks. Martinssons and Chong (1999) have proven that proficient technology can be subject to sabotage if people perceive it as interfering with their well-established social networks. Cooper (1994) also noticed that new technology, when clashing with culture, is either rejected, or has to adapt to suit culture. Organizational culture is a multi-layered concept, suiting the social identity theory (Tajfel, 1978, 1970). Starting from this concept, Straub et al. (2002) have constructed the model of the virtual onion, a multi-layered entity, in which the delimitations between the layers and their hierarchy are virtual, subject to change at every moment. Thus, the way organizational culture is structured resembles a cortex, where knowledge-processing structures levels coexist in a virtual order. Mental models, in their turn, when they are

increasingly complex, observe the same architecture. So, even from a structural point of view, organizational culture has a learning-oriented architecture.

- b) Technology.** Technology, particularly IT infrastructure, enables knowledge creation (Alavi and Leidner, 2001), which is an important sequence of the learning process (Nonaka, Tayama and Byosière, 2001). Research and development resulting in technological progress is a learning process (Yin, 2002; Cohen and Levinthal, 1989; Rosenberg, 1982), consistent with Bessant, Caffyn and Gilbert (1996), which regard technological innovation as organizational learning. So, on the one hand, technology enables learning, by facilitating knowledge creation, knowledge storage and knowledge sharing, and, on the other hand, technological processes leading to innovations are based on the same mechanisms which govern organizational learning. Only the organizational inquisitive mind, in an organizational culture which is not disturbed by technological innovations, can generate and accept them, using them for further learning processes.
- c) Relations.** Organizational learning is based on knowledge sharing (Davenport, 1997), and on synergy (Cohen and Levinthal, 1990). Argyris (1994) and Levinthal and March (1993) have identified a relation between organizational learning and relationship orientation, as a learning organization is able to orient itself in the market, by learning from its customers and competitors (Day, 1994). Back in 1986, Deming favoured, rather than the sprints of individual performance, the long run of transversal teams put to work, for assuring the flexibility of the company, and the successful divorce of performance and hierarchy. Möller et al. (2005) underlines the importance of solving tasks cooperatively for innovation and market success. The terms *collective competencies* (Lowe and Schellenberg, 2001), or *collaborative intelligence* (Wolper and Turner, 2000) are used to describe the new patterns of learning, where multiple agents collaborate in order to accomplish their common goal, and practically learn together how to harmonize their self-interest with the general priorities of the company. Cross-learning, favoured by the camaraderie, contributes to generating a type of knowledge which is labeled as “knowing whom” (Cadin et al., 2000), a particular relational knowledge, operating inside and across the groups in the organization. Individuals are changed, during their team experience, and even if trust is a value previously hold by the individuals, it can be exercised only in teams. People need to learn in order to become insiders, and become insiders in order to learn (Brown and Duguid, 2000): *The central issue in learning is becoming a practitioner, not learning about practice* (Brown and Duguid, 2000: 48). An organization is a network of interactions and, following the behaviourists (Dickinson, 1980), individuals have to be stimulated in order to learn, and they produce responses to the various stimuli. Social stimulation (Van Praag, Kempermann and Gage, 2000) or Piaget’s (1954) cognitive restructuring by interacting with the group, by establishing relationships.
- d) Leadership** tends to be stronger than management in learning organizations, as it stimulates organizational learning (Vera and Crossan, 2004). Strategic leadership enhances the individuals’ need for relational

knowledge (Smith and McKeen, 2004), for exchanging ideas, rather than for receiving orders. Relational knowledge implies knowledge exchange which, in Molm's (2001) view, asks for the simultaneous presence of four elements: the actors of the exchange, the exchanged resource(s), the structure of the exchange and the exchange processes. The interactions among exchange actors can be fortuitous and temporary, or very solid, leading to the formation of the communities of practice (Wenger, 1996; Spender, 2002). The existence of such communities of practice is based (Wenger et al, 2002) on three pillars: precise delimitation of the knowledge domain, forming of a group of persons particularly interested in that domain, and elaboration of a code of practice shared by all the members of the group. In these communities of practice, leadership intervenes in equilibrating the phases of the SECI model of knowledge transfer (Nonaka et al., 2000), and in suggesting the most suitable type of transformation, for a given context. Similar to human reason, which mediates between what might be done and what can be done (Nagel, 1998), leadership mediates between what an organization would, and what an organization should, in its learning process. Story telling, as an input to organizational learning, helps leaders become more charismatic (Mio et al., 2005), and inspire their followers into learning (Gibson and Birkinshaw, 2004; Boal and Schultz, 2004), by creating a culture of openness (Lewis, 2000).

From an operational perspective, these four components of the CTRL model of organizational learning should be addressed to in the reverse order, as shown in **Figure 1**, starting from leadership, which is the closest to the individual level, and concluding with culture, which is the most general, at the organizational level.

The individual level of learning is composed of four elements:

- a) involvement;
- b) evolution;
- c) e-intelligence;
- d) expertise.

a) Involvement. Being involved can be equaled with being able to think of yourself as part of a larger structure, to whose goals you adhere. Shared vision (Albrecht, 2005) is an essential element of organizational learning. Systems thinking is "a discipline for seeing wholes" (Senge, 1990, p. 68), which plays its part in organizational learning. Involvement leads to group solidarity (Brown and Duguid, 1991), which creates commitment and co-participation (Wenger, 1998, 2000). The sense of belonging (Wenger, 1998) creates the cognitive consensuality (Bluck and Habermas, 2000), which enables the members of the organization to share their individual learning outcomes. Although the risk of a conformist bias (Henrich, 2004) exists, because people, wanting to be integrated in the group, replicate only those practices which are accepted at the group level, and power relations (Lawrence et al., 2005) limit the span of involvement, it remains a key mediator between individual and organizational learning. The co-mentoring and team learning Lick (2006) mentions are outcomes of involvement, that contribute to creating a learning climate in the

organization, by the active participation of all its members, who obtain together the results they truly desire (Senge, 1990).

- b) Evolution.** In 1989, Dawkins launched the concept of *memes*, stating that, as evolutionary biology is the result of the replication of the “selfish gene”, socio-cultural evolution is determined by the replication of a selfish meme, an idea, or theoretic embryo, or practice that is transmitted from brain to brain, across generations. The phenotypes of the memes, the external representations they exhibit are the sociotypes (Grant, 1990), shaping individuals in an organization in a particular way, which is learned, according to the specific rigors of their social environment. Bluck and Habermas (2000) speak of the cultural concept of biography, which is not merely the sequence of events in one’s life, but the way in which these events are understood and assigned a level of significance. In other words, individuals learn to copy the most successful models (Henrich and Gil-White, 2000) in their social environment, and this process is labeled as evolution.
- c) E-intelligence.** Emotional intelligence residing with the individuals in the organization intervenes in tacit-to-tacit knowledge exchanges, as defined by Nonaka and Takeuchi (1995). According to Oatly (2004), people get connected through empathy, although this is never perfect, despite Vignemont’s and Singer’s (2006) theory on mirror neurons, as we can’t, for instance, see colours in the same way, nor can we feel joy, or pain, in the same way. The concept of “bounded emotionality” (Mitroff and Pauchant, 1990), complementary to the one of bounded rationality (Simon, 1957) was also advanced, as a bottleneck in performing organizational learning. Opposed to it, emotional capacity, an aggregation of the emotional intelligences of the individuals, describes the ability to react to emotionally challenging events, and to transform them, and emotional, as well as rational, errors in the past, into chances to advance learning.
- d) Expertise.** Individuals who have benefited from adequate technology gain expertise. Expertise means not only the ability to find the best available solution to organizational problems, but also the possibility to build trust among the members of the organization (Ackerman, Volkmar, Volker, 2003). Expertise is the one which introduces the human dimension into organizational learning. The overall expertise has to be leveraged, so expertise sharing involves the building of communities of practice, the enhancement of communication and of learning motivation, in such a way that knowledge sources become available for knowledge seekers (Hildreth and Kimble, 2004). Wenger (2003) notices that our socially defined competences are placed in an interplay with acquired experience, so expertise is determinant for social relationships and social recognition of the position within the organization.

These four elements should also be considered in a reverse order, from expertise which, although acquired in the organizational technological and social environment, is the most proper to the individual – individuals who leave the organization take their expertise with them, if organizational learning processes were not strong enough to disseminate it –, to involvement, which defines the individual’s position in the group, linking individual and organizational learning.

Organizational learning pays back to the organizational environment change, innovation, and empowerment. According to Spector and Davidsen (2006), learning can't be separated from change. Sashkin (1993) supports the same idea – that organizations learn in order to be able to change. Following Tushman and O'Reilly (1996, 2004) there are two main processes taking place in every organization: exploitation and exploration. Organizational learning, coming from the everyday practical needs of the organization, is exploitation-pushed and exploration-pulled. Innovation emerges as an effect of organizational learning, as it: "consists of the generation of a new idea and its implementation into a new product, process and service, leading to the dynamic growth of the national economy and the increase of employment as well as to a creation of pure profit for the innovative business enterprise. Innovation is never a one-time phenomenon, but a long and cumulative process of a great number of organizational decision-making processes, ranging from the phase of generation of a new idea to its implementation phase. New ideas refer to the perception of a new customer need or a new way to produce. It is generated in the cumulative process of information-gathering, coupled with an ever-challenging entrepreneurial vision. Through the implementation process the new idea is developed and commercialized into a new marketable product or a new process with attendant cost reduction and increased productivity." (Urabe, 1998: 3, in Popadiuc and Choo, 2006)

Finally, empowerment is an assumed value of the learning organization (Field, 1997). It stimulates democratic leadership and enables employee involvement, which are inputs to organizational learning. The circle is, thus, closed. All these dimensions, interrelated, create premises for the organizational learning to be enhanced. Still, as any other process, organizational learning needs to be measured, or at least some characteristics, following those tested by Watkins and Marsick (2003) for the learning organizations, need to be put forward.

In 1747 Bach composed, in honour of Frederick the Great, *The Musical Offering*, and he noted, in a margin of his score, the words *Ascendenteque Modulatione ascendat Gloria Regis* (As the keys ascend, so may the glory of the king also ascend), as the work gives the illusion that the canon rises at each of its repetitions. And the king's enemies started to gossip, soon after: *till where should rise the glory of the king?* The question was left without an answer, and so is now, the question about the extend of learning in organizations.

We examined, in a pilot research, the characteristics of organizational learning in a Romanian university, taking into account the particularities of the academic organizational culture, the critical nature of academic staff (Davies, Douglas and Douglas, 2007), and the multiple stakeholders (Neave, 2002) to whose interests the evolution of the university must respond.

Methodology

Starting from the DLOQ (Dimensions of the Learning Organization Questionnaire), developed by Watkins and Marsick (2003), the LCQ (Learning Company Questionnaire), of Pedler et al. (1997) and the questionnaire proposed by Garvin and Edmonson (2008), we created a 60 items questionnaire for analyzing the characteristics of the organizational learning in a university. The variables and the items corresponding to them are presented in **Table 1**:

Table 1. Variables and items in the questionnaire

Variables (O – organization, I – individual, OC – organizational climate)	Items
Culture (O1)	Q1: in your organization, it's open talk Q3: mistakes are tolerated Q5: different opinions are accepted Q7: problems are dealt with discretely Q9: ideas are spoken out loud Q11: feedback is encouraged Q15: organizational life is stressful
Process/ Technology (O2)	Q12: existing technologies are improved Q13: technological routines are revised Q14: work under pressure postpones improvement Q34: working under pressure is habitual
Relations (O3)	Q2: playing your cards next to your chest is a condition for success Q6: people are open in relation to colleagues and superiors Q8: the organization gains knowledge from its competitors Q10: the organization gains knowledge from its customers Q16: the organization compares itself with its competitors Q17: the organization compares itself with the best in class Q18: the organization has internal networks of experts Q19: the organization has external networks of experts
Leadership (O4)	Q4: decision-making is participative Q20: the manager admits having limited knowledge Q21: the manager tests the employees' understanding of the tasks assigned
Involvement (I1)	Q22: the manager mustn't be contradicted Q25: the manager listens to the employees Q23: employees have the right to a different opinion Q27: employees reflect on what they do

<p>Evolution (I2)</p>	<p>Q30: employees engage in constructive debates Q31: employees are stimulated to have contradictory discussions Q32: employees analyze decisions</p>
<p>E-intelligence (I3)</p>	<p>Q24: employees are stimulated to evolve in the organization Q26: employees are coached when they advance in the hierarchy Q29: opinions which are not suitable with what the majority thinks, are ignored Q39: employees are given time to evolve</p>
<p>Expertise (I4)</p>	<p>Q33: employees know who they are Q35: employees feel overstressed Q36: employees feel ignored Q37: employees are stimulated to put themselves in the place of others Q39: employees are never listened to</p>
<p>Change (OC1)</p>	<p>Q38: new employees are trained when entering the organization Q40: senior employees are periodically trained Q41: employees are trained whenever a change occurs in the organization Q42: training is appreciated in the organization Q60: employees take pride in their expertise</p>
<p>Innovation (OC2)</p>	<p>Q43: no matter how hard we try, nothing changes Q44: people are afraid to change Q45: routines are periodically broken Q46: people resist changes Q58: ideas for change are quickly put in practice Q59: the organization systematically avoids risks</p>
<p>Empowerment (OC3)</p>	<p>Q47: new ideas are appreciated in the organization Q50: employees are interested in new practices Q52: new ways of performing tasks are</p>

	<p>frequently put in place Q53: prototypes and simulations are used regularly Q55: innovations are formally pursued Q56: innovations are easily adopted Q57: controls post-innovation are habitual</p> <p>Q28: the manager asks for opinions Q48: employees' ideas are praised Q49: experienced employees are sought for advice Q51: differences in opinion are sanctioned Q54: employees are responsible for their work.</p>
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The variables were ranked on a Likert scale from 1 (totally disagree) to 7 (totally agree). The questionnaire was filled in by 20 members of the teaching and research staff in the university, out of which 35% are senior staff, and 65% junior staff, 20% hold management positions, and 25% have worked, previously, in another university.

We performed factor analysis with Varimax rotation, and we obtained 15 factors accounting for 98% of the variance, as presented in Table 2.

Table 2. Factor analysis

Component	Items	Initial Eigenvalues			Extraction Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3, 5, 11, 13, 16, 17, 21, 25	9.289	15.481	15.481	9.289	15.481	15.481
2	14, 2, 10, 30, 19, 22	6.702	11.169	26.650	6.702	11.169	26.650
3	27,	6.408	10.681	37.331	6.408	10.681	37.331

	32, 38, 40, 60						
4	45, 59, 47, 49, 51	5.353	8.921	46.252	5.353	8.921	46.252
5	8, 18, 19, 20	4.361	7.268	53.520	4.361	7.268	53.520
6	9, 15, 12, 34	4.174	6.957	60.477	4.174	6.957	60.477
7	23, 31, 26	3.926	6.543	67.021	3.926	6.543	67.021
8	26, 29, 39, 33	3.339	5.566	72.586	3.339	5.566	72.586
9	43, 44, 53, 55	3.031	5.051	77.638	3.031	5.051	77.638
10	57, 28, 48, 56	2.916	4.859	82.497	2.916	4.859	82.497
11	54	2.476	4.126	86.623	2.476	4.126	86.623
12	1, 7, 6, 4	2.218	3.696	90.320	2.218	3.696	90.320
13	36, 37	1.935	3.224	93.544	1.935	3.224	93.544
14	46, 58, 50,	1.663	2.771	96.316	1.663	2.771	96.316

	52						
15	35, 41, 42	1.271	2.118	98.434	1.271	2.118	98.434
Extraction Method: Principal Component Analysis.							

As it can be noticed, according to the distribution of items, five components (C1, C2, C5, C6, C12) belong to the organizational learning level, five components (C3, C7, C8, C13, C15) to the individual learning level, and the rest of five (C4, C9, C10, C11, C14) to the organizational climate level. Based on this distribution, we performed three-way analysis, on the following modes:

Mode 1: three levels (organizational learning, individual learning, and organizational climate)

Mode 2: five components

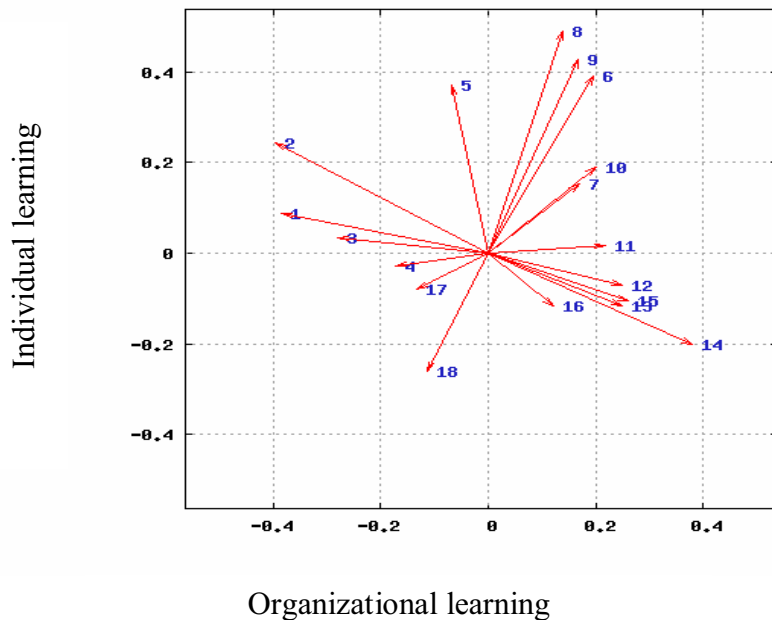
Mode 3: twenty subjects.

Cronbach's alpha for the organizational learning variables is .59, for the individual learning variables is .62, and for organizational climate variables is .55.

Results

The inclination of the subjects towards identifying characteristics of organizational and, respectively, individual learning in their organization is presented in Figure 1:

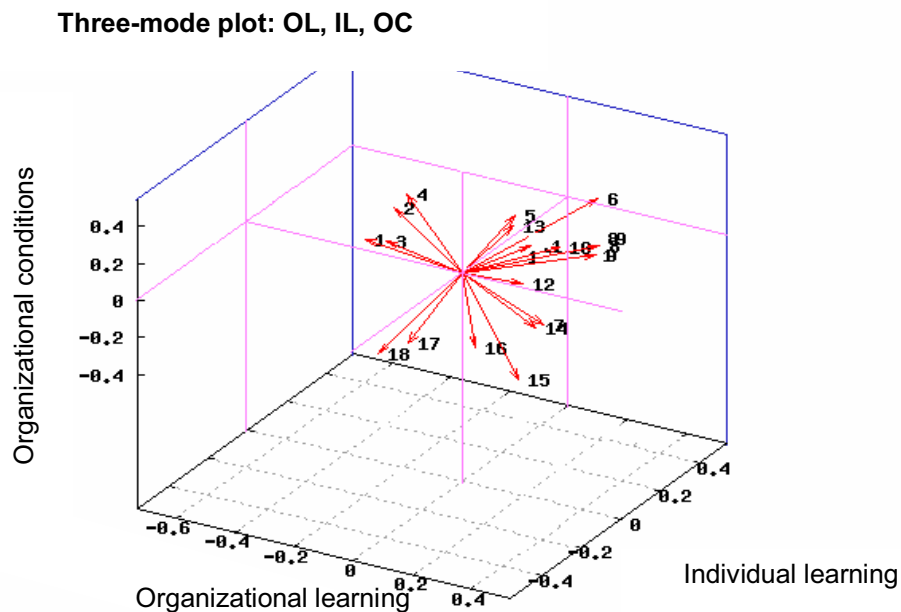
Figure 1. Subjects' positioning in respect to organizational and individual learning characteristics



As it can be seen, the last two subjects didn't identify at all characteristics of individual or organizational learning. The first seven subjects designate senior staff, the first four holding management positions. As represented in the plot, senior staff (71%) identifies characteristics of individual learning in the organization, rather than of organizational learning, and all the four respondents holding managerial positions are oriented towards individual learning.

The positioning of the subjects in respect to all the three modules of the questionnaire, organizational learning, individual learning and organizational conditions is shown in Figure 2:

Figure 2. Subjects' positioning in respect to organizational learning, individual learning and organizational conditions characteristics



As it can be seen, two of the subjects don't identify any characteristics at all, while only two subjects, belonging to the junior staff, consider that organizational learning characteristics prevail in the university. The majority of the subjects (66%), as represented **also in Figure 1, consider** individual learning characteristics as being prevailing. Still, the group represented by the management staff considers organizational conditions characteristics to be well represented in the university.

Conclusions

The pilot study shows that senior and junior staff in the university holds different opinions when it comes to identifying organizational characteristics specific to organizational learning, individual learning, or organizational conditions.

Also, respondents having managerial positions differentiate from the group, in terms of the characteristics they identify. Excepting two of the respondents, the entire sample identifies some learning processes in the academic environment. While the senior staff tends to say that learning processes in the university take place mainly at the individual level, and the management connects learning processes with organizational conditions, junior staff identifies learning processes taking place at the organizational level. Given that the three modules we investigated in the questionnaire are interconnected, and stimulate each other, the conclusion of the pilot research is that the considered university, as analyzed by the members of its staff, has the organizational conditions and the individual potential to learn, although its organizational learning processes are in an incipient stage, which has the perspective of being accelerated by the junior academic staff.

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OVERCOMING BARRIERS TO EMPLOYMENT FOR VISUAL IMPAIRED PERSONS IN THE ROMANIAN LABOR MARKET

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Abstract. The efforts made by Romania to adopt an antidiscrimination legislation have started even before our country was required by the European Union to implement the European anti-discrimination guidelines. All the discrimination criteria refer to both discrimination at the working place and to discrimination when entering employment. Nevertheless, the activity from the recruitment sphere proved that there are clear and evident discrimination practices starting with the recruitment phase and continuing with the job selection, especially the job interviews. Focusing on the employment entrance phase, the present study explores the employers' representations and attitudes towards disabled workers. Based on the results obtained, the paper presents a set of strategies adapted to the specific of the Romanian employers and labor market, aiming to increase the employment rate for visual impaired persons.

JEL Classification: J08, J15

Keywords: visual impairment, employment, job selection criteria, discrimination

1. EU non-discrimination legislation

The European Community's Racial Equality Directive and the Employment Framework Directive establish the principles that provide the whole EU population with a minimum level of legal protection against discrimination on grounds of race, ethnic origin, disability, religion, beliefs, age or sexual orientation, especially at the workplace.

The non-discriminative principle lies at the foundation of EU legislation and is emphasized in several of the treaties. As a result of the promulgation of a series of articles, EU applied a strategy against discrimination in three steps:

1. The implementation of norms regarding the treatment of others based on principles of equality regardless of race or nationality (Council Directive 2000/43/EC);

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2. The implementation of a directive in respect to equal treatment when hiring and within work and professional relations on principles of religion, faith, disability, age or sexual orientation (Council Directive, 2000/78/EC);
3. The implementation of Community's Plan of Action 2001-2006 (Decision 2000/750/EC) in respect to the abolition of any type of discrimination mentioned in article 13 (besides sexual). The program has three main aims:
 - a) assistance with the analysis and evaluation of the degree and nature of discrimination in EU, on the one hand, and with the efficiency in abolishing it, on the other hand
 - b) help with the increasing of the competent actors' capacity of abolishing discrimination in EU and European countries
 - c) promotion and dissemination of values and practices needed in abolishing discrimination among the law-makers and opinion-leaders.

Social inclusion represents both a strategy and a leading principle of EU framework, which aims at eliminating exclusion, poverty, and disadvantage through its member states. This priority is approached through different cross-EU projects and by the legislative importance assigned by the national or regional governments (Roy, Storrow, Spinks, 2002). The requirements for different countries to work together and to develop partnerships represented a great challenge for the applicants, because there are differences not only in the legislative framework, but even in the ways countries perceive and treat the disadvantaged categories, in the population's values and representations about them.

2. Conceptual framework

According to EU legislation, discrimination means treating differently or differentiating between two persons or situations, when there is no relevant distinction between the two, or treating identically different situations (EC, 2007). The two anti-discriminative directives prohibit both direct and indirect discrimination.

Romanian legislation stipulates that any type of direct or indirect discrimination towards an individual, be it sexual, or based on gender, sexual orientation, genetics, age, nationality, race, color, ethnicity, politics, social origin, disability, language, social status, beliefs, chronic un-contagious disease, HIV, or affiliation to an unfavored category, familial situation or responsibility, union trades, is strictly forbidden. The current Romanian legislation covers all criteria of discrimination stipulated by European directives and defines direct and indirect discrimination directly.

Direct discrimination occurs when a person is treated less favorably than another in a comparable situation because of their racial or ethnic origin, religion or belief, disability, age or sexual orientation. The correct identification of a discriminative act meets with the difficulty of identifying the comparable situation. There must be found a person whose situation is comparable to the claimer's case of discrimination. Provided that these two situations are similar, a comparison can be established. Direct discrimination has been defined as *any difference, exclusion restriction or preference, based on race, nationality, ethnicity, language, religion, social category, age, disability, un-contagious chronic disease, HIV, baring as aim or effect the restriction or lack of exertion of the human rights, fundamental liberties or other rights stated by the law, with the political, economic and social domain, as*

well as other areas of public life. Though slightly different from the EU directive, this definition covers its fundamental requests regarding the direct discrimination.

Indirect discrimination occurs when an apparently neuter measure, criterion or policy is at the disadvantage of persons belonging to a certain group, and to the advantage of other persons. The apparently neuter measurements, criteria or policies which are at the disadvantage of certain persons, based on the criteria mentioned in the case of direct discrimination are discriminative except the cases when they are objectively justified by a legitimate aim, and the methods used to pursue the aim are adequate and necessary.

Despite the existing framework of legal protection, discrimination continues to exist, and for this reason further efforts are required to ensure that the individuals' right of not being discriminated is implemented effectively around the enlarged European Union. In order to counteract the widespread of discriminative behavior and mentality, the year 2007 has been designated as the "European Year of Equal Opportunities for All", while 2003 was the European Year of people with disabilities.

The results of the survey about discrimination and inequality in Europe, coordinated by European Commission DG Employment in 2006 across the European states, show a broad sense of understanding for the disabled persons (more than 73% of the respondents believe that disabilities represent a disadvantage). The findings from this survey provide a good insight into the perceptions, attitudes, knowledge and awareness of discrimination and inequality around European Union in 2006. On average, more than half of the respondents believe that the disability is widespread in Europe, with the highest perceived widespread in Italy (68%), and the lowest in Denmark (32%), while for Romania it is 48%. Asked which criteria could represent a disadvantage when an employer selects between two candidates with an equal level of skills and qualifications, the most frequent response relates to the candidate's look (51%), followed by a disability factor (49%). The same disadvantage is perceived for disabled employees while getting a promotion. The findings show a consensus in all the Member States that more financial investments should be made for improving accessibility (91%).

Starting from these findings, the present study presents the results of a survey conducted in Romania, which based on the identification of employers' representations about disabled candidates and workers, aims at developing a set of strategies meant to increase the employment rate for visual impaired persons.

3. Discriminatory practices at employment

Employment and occupation are key elements in guaranteeing equal opportunities for all. They strongly contribute to the full participation of citizens in economic, cultural and social life, and to achieving their potential. The practice in the matter of employments has proven the fact that clear and evident discrimination exists even from the stage of recruitment (such as the presence in mass media of certain demands and discriminatory requests regarding the candidates), and continues with the stage of selection of the personnel, especially at the stage of the job interview. Lots of cases of potential discrimination occur as a result of the demands that are supposed to be fulfilled („young”, „dynamic”, „good looking” person) and of direct questions addressed by the interviewers who do not know or know but ignore the discriminatory questions.

The longitudinal research developed by Woodhams and Corby (2007) analyzes the outcomes of the changes in employers' human resource management practices with respect to disability equality in 1995 under the Disabled Persons (Employment) Act, and in 2003 under the Disability Discrimination Act. The results show that the human resources practices meant to encourage disabled employees really had a significant impact upon their employment. Starting from this kind of positive findings, we can identify strategies for the human resource management which to facilitate the labor market integration of the disabled people. As related to the awareness of the existence of anti-discrimination laws, disability represents the category of discrimination known to be prohibited by law when hiring new employees by the most of the respondents (51%).

On the other hand, at the European level, the decrease in manufacturing and jobs such typist or telephonists lead to the narrowing of the employment opportunities for the disabled persons with few formal qualification (this happened because in some European countries the educational opportunities for visual impaired persons had been restricted in the past, which made a large number of them become employed in manufacturing). Even if there were adopted several strategies meant to improve the employment opportunities for the disabled persons, the unemployment rates for visually impaired people in 2000 remained around 75% for persons aged 18-65, which is the same level with the one in 1990 (Bruce, Baker, Ryan, 2000).

McBroom's report (1995) on the experiences of 45 successfully employed visual impaired persons, who had recently made the transition from college to labor market, revealed that the employees needed an average of 7 months to obtain their jobs. There were identified several problems faced by the disabled persons in areas such as transportation, accessing written materials, financial support, discrimination because of visual impairment, accessing computers, managing time, loneliness. The interviews with the employers showed that they were aware of the legal protections available to applicants and employees with disabilities, and that they expected to be informed about the visual impairment before or during the hiring interview. The most frequent accommodations provided were travel instruction, computer access devices, alternative print media, flex-time scheduling, and removal of architectural barriers.

Another source of information about disabled person's overcoming employment barriers if offered by the practitioners, the rehabilitation providers (Cruden, Sansing, Butler, 2005). The research used the focus group method, with 43 rehabilitation providers (rehabilitation counselors, rehabilitation teachers, job specialists, rehabilitation supervisors, counselors) who had a mean of length of employment over 10 years. The main barriers identified for the visual impaired while trying to get a job were related to employers' attitudes, transportation, and access to print. They also believed that besides the fact that employers lacked information about visual disabled persons, or about the adaptive techniques, they also expressed a feeling of fear of blindness. The study also reported administrative barriers: inefficient communication, time pressure, insufficient coordination of services, lack of good training programs (Cruden, Sansing, Butler, 2005).

Starting from these findings, the present paper explores the Romanian employers' attitudes towards visual impaired candidates and workers.

Unfortunately the Romanian legislation does not even use the term „people with disabilities”, but only that of „people with handicaps”, which excludes from the very beginning an entire category of people from the regulations regarding non-discrimination. The handicap is always determined medically, with a document in this sense, while the disability regards a certain state of health without the need of a medical justificatory document. Regarding the definition provided by Law 519/2002 for the handicapped persons, they represent those persons whose access based on equal chances at social life, according to their age, sex, social, economical and cultural factors, is limited, totally or partially by an improper environment for their physical deficiencies, which can be mental or sensorial, necessitating thus measures of special protection for their social integration. This conceptual framework might strongly influence the population’s representations and attitudes towards candidates or employees from these types of disadvantaged categories.

Information about the disabled persons’ experience when searching for jobs is also offered by studies focused on disabled job searching persons. The exploratory study based on 38 semi-structured interviews showed the presence of a range of build environment barriers both for getting employment and for keeping a job, which proofs the need for some reasonable adjustments (Newton, Ormerod, Thomas, 2007). Reasonable adjustment means changing some feature of the work situation so that people with disabilities can do their work more effectively: adjusting access to buildings and rooms, modifying equipment, re-designing jobs or work areas and implementing more flexible work practices. It also includes making funds available for staff members with disabilities in order to cover any additional travel costs incurred because of their disabilities.

In the 5th article from the Directive of the Council regarding working relationships (2000/78/EC), the notion “reasonable adjustment” of people with disabilities appears. In order to guarantee the principle of equal treatment concerning the people with disabilities, a reasonable adjustment will be issued. This means that, when need be, in particular cases, employers must take necessary measures in order to allow a person with disabilities to have access, participate or to promote in their working environment, or to benefit from instruction, except the case when such measures suppose an unequal effort from the part of the employer. This effort will not be considered unequal when it is sufficiently covered by existing measures within the politics regarding disability of that state.

As related to the reasonable adjustment, the Romanian juridical language has included this concept idea only from the late 2006. The philosophy that lies beyond this concept is that of bringing people with certain special needs in terms of equality on the labor market, offering them the chance of accommodation. This means that, as many times as necessary, adequate measures need to be taken for people with disabilities in order to guarantee the equal treatment except the situation when it can be proved that such an accommodation would represent a too great difficulty for the other part. Examples of reasonable adjustment would represent adapting a chair, time schedules, introducing special equipments.

Unlike these EU regulations, the Romanian legislation takes into consideration those measures which maintain the isolation of people. It will be one of the most important tasks of the CNCD to propose concrete measures of aligning the Romanian legislation and practice to the demands of the EU Directive and to

the entire community aquis which contains several items regarding people with disabilities, Romania being far from this legislation.

4. Discrimination in national context

Romania's efforts towards an anti-discriminative legislation have been visible even before being obliged to apply the measurements of European directives. Beginning with 1999, a mixed commission made of representatives of The Protection of National Minorities and leaders of NGO's was founded, in order to design a bill regarding the decreasing and punishing all forms of discrimination. One year later, the bill was passed as 137/2000 Ordonance. Since 2001 only, the activities of National Council for Abolishing Discrimination have begun, with this very purpose, targeting the following areas: the prevention, mediation, investigation, establishment and punishment of discriminative acts, on the one hand, and provision with professional help for the discriminated part, on the other hand. Additionally, the council is assigned with the task to design and implement positive measurement and public policies with respect to discrimination abolishment. Moreover, a series of other bills were issued, regarding the equality of chances and decrease of sex discrimination, the insurance system, the stimulation of the labor force occupation, motherhood protection at the working place, paternal leave.

Considering the current legislation, Romania has applied a great amount of the European directives. The mode of transfer chosen by the Romanian state aimed at designing a general, unique law, with coverage upon all criteria of discrimination and all areas of social life. Still, disabled persons face multiple discriminatory practices while trying to find a job, or trying to maintain employed.

Method

In order to identify the representations employers have upon visual impaired persons (blind or low vision), we conducted a survey, which included 100 organizations, in the field of tourism: catering, tourism agencies, and hotels. There were distributed 100 questionnaires to the managers or to the recruiters from the human resource departments, out of which we got 81 answers and 19 non-responses.

Empirical results of the survey

Only 10% of the organizations sample had working employees with visual impairment. Evaluating the availability of organizations to offer support to people with visual impairment, more than half of them (55.55%) admitted that they do not want to offer support for this category of employees, 34.57% would offer some voluntary, temporary not paid working positions, while less then 10% of the respondents were open to hire visual disabled persons if they were suitable with the job.

Table 1: The availability of the organizations to offer support for visual impaired persons

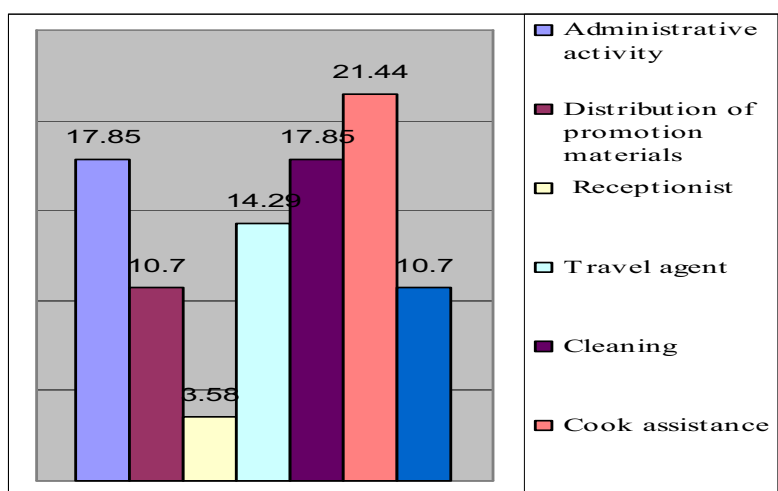
Yes, we offer, temporary, voluntary work	34.57%
Yes, contract of employment	9.88%
No	55.55%

The reasons which lay behind the unwillingness of the employers to hire people with visual impairment refer to their unsuitability for the jobs existing in the organization (55.5%), such as the jobs request computer use, attention skills; to their lack of desire to invest in special equipment (24.5%); the disabled persons' low efficaciousness (13.5%); and a simple reticent attitude (6.5%). Comparing the Romanian employers' motives for not hiring disabled persons with the challenges anticipated by the employers participating in the research conducted by Wolffe and Candela (2002), there can be noticed slight similarities related to the fear that the disabled worker would not be efficient enough and to the consequences assumed by hiring workers who need special support and equipment. While in the Romanian companies the challenges are anticipated to be reflected in the financial investments needed for the visual disabled persons, the employers from Wolffe and Candela's research (2002) are more concerned about the knowledge required by hiring and dealing with visual impaired workers, the equity of offering special treatment, and concerns about dog guides.

According to Romanian legislative framework, organizations in Romania benefit of several facilities when hiring people with visual impairment: exemption from the payment of the profit tax, provided that a reinvestment of at least 75% of the fund obtained by exemption for purchasing technological equipment, machines, working assemblies and/or for the setting of protected working environments should be made; exemption from the payment of the duty taxes for the import of raw materials, semi products, machines and component parts necessary in the production process, prohibiting their selling/renting; exemption from the payment of Value Added Tax for the exchanges within the authorized protected centers. Nevertheless, even if organizations with more than 50 employees are required by law to hire disabled persons, the majority of them prefer to pay compensation fees, than to hire disabled employees.

When asked about these facilities, only 6% of the respondents proved to know about them. Besides that, the employers' reluctance to work with this kind of employees was indicated by their lack of interest for the financial facilities they could obtain.

Table 2: Working activities in which organizations want to hire people with visual impairments



The fact that employers really do not know how they could use employers with visual impairment is showed by high rate of non-responses to the question related to the jobs/activities in which organizations want or could hire people with visual impairment. Those who answered named mostly unqualified jobs, such as cook assistance (21.4%), cleaning (17.8%), administrative activities (17.8%), travel agent (14.5%), distribution or promotion of materials (11%), chamber-maid (11%).

We can observe here a high disadvantage for the disabled individuals when trying to find a job. Some strategies for counteracting this phenomenon could focus on raising the employers' awareness about the disabled persons' capacity to realize certain activities within organizations.

Most of the organizations require a certain code of dress, while only 29% do not expect from their employees to dress in a certain way. The majority of the dressing rules include protection clothes (51%), uniforms (21.4%), and neat dressing (21.4%).

Referring to the qualifications employers expect the candidates to have, most of the respondents indicate university degree (36.8%), other specialized qualifications, such as tourism, receptionist, chamber-maid (25%), high school studies (16.6%), middle school (8.3%). Comparing the educational qualifications required and the jobs the employers offer, there is a lack of correspondence between the high level qualifications the employers ask for and the low skilled jobs they offer.

We were also interested in the qualities the candidates should have, in order to see if these skills could be provided by visual impaired persons. The most frequent skills indicated by employers were the communicative character of the candidates (22.2%), honesty and seriousness (19.7%), sociability (13.6%), adaptability (12.4%).

Table 3: Qualities required by employers

Communicative character	22.20%
Team work abilities	7.40%
Responsability	4.93%
Motivation for work	1.23%
Social skills	13.58%
IT skills	6.17%
Stress resistance	2.46%
Creativity	2.46%
Honesty, seriousness	19.75%
Flexibility	12.34%
Foreign languages	6.17%

5. Strategies for increasing the employment rate for visual impaired persons

As the results of the present survey indicate, one of the main tasks which need to be completed in the fight against discrimination in Romania resides in informing and educating society, increasing the degree of awareness. This goal can be realized using several means:

1. Promoting the NGOs and making the public opinion aware of the themes they promote
2. Acknowledging the society on the aspects concerned with the principle of equality by:

- Offering information, organizing campaigns, research and publishing research results regarding discrimination. The attempts to educate employers (Dahl, 1982), and the public in general (Maxson et al., 1997) represent some possibilities for changing the attitude towards visual impaired persons. The research literature indicates several efficient ways for increasing the employers' awareness about workers with disabilities. Hernandez et al. (2000) find that training seminars addressed to employers which include videotaped materials about disabled workers have a greater impact than those based only on reading materials. On the other hand, the simple fact that the employers experience working with visual impaired employees seem to be extremely helpful for developing a more open attitude towards hiring workers with disabilities (Gilbride et al., 2000). This shows the necessity to increase the chances for employers to get experience in working with disabled persons. Another strategy is to coach employers who are beginners in working with visual impaired workers (X, 2002).
 - Offering arguments for the fact that society can understand disability and that equal opportunities have to be promoted by a greater number of persons: reasons for which such discriminatory facts are prohibited and the meaning of the fact that these prohibitions are according to the law
 - Offering information regarding the legislation concerning the right of not being discriminated, the legislation which applies this right, the legal means of protection against discrimination, preventive measures, contact details of authorities and organizations which fight against discrimination.
3. Identifying alternative funding in order to provide the visual impaired persons with the necessary assistance technology (Maxson et al., 1997). One of the funding sources is represented by the opportunity to access the European Funds. Related to the challenges met by the organizations from distinct European states that apply to European Funds (different levels reached in approaching and treating the disabled persons, different definitions for the concepts related to disableness), the programs detailed next should develop employment-related materials which to be relevant for all participating EU countries. The resolution of misunderstandings can occur through transnational visits, fact finding missions, and staff exchanges (Roy, Strow, Spinks, 2002). Some of the projects already developed are VISAGE (Visual Impairment and Standards in Adult Guidance and Employment), which aimed at improving the prospects of unemployed adults with visual impairment raising the quality of the job-matching services, Visual Impairment and the Training of Employment Specialists (VITES), which was a pilot training program for specialists who worked with disabled persons, VISIONLITE - which facilitated the access to mainstream employment for visual impairments, EATT (Equal Access to Technology Training), which aimed to increase the computer literacy among visually impaired people aged 35 to 65 (McCandish, 2000).

The strategies that might be implemented in order to overcome the barriers faced by the visual impaired persons refer to the *attitudinal barriers* (educating employers about visual impairment, increasing contacts between disabled persons and employers, of using non-threatening methods such as videotapes, portfolios, contact meetings, employer mentoring programs, encouraging employers to visit

web-sites, temporary placements), *transportation* (networking with co-workers, hiring drivers, modification of the public transportation conditions, use of grants in order to develop transportation programs), *access to print* (use of technology specialist for temporary assisting at the working place the disabled persons), *administrative barriers* (developing communication between different organizations working with visual impaired persons, contacts between assistance services providers), supporting the disabled persons by preparing them for the job they apply for, advising them to participate to different job clubs (Cruden, Sansing, Butler, 2005, Brooke, 1998). Contrary to this focus on barriers, other studies (Golub, 2006) are oriented toward the factors which employers believe to determine visual impaired persons to be successful employees, in this way aiming at empowering the disabled workers' success in employment.

6. Discussion and conclusions

The results of the present study strongly indicate the necessity for Romanian employers to get better informed both about the disabled persons rights to equal chances to employment, and about what working with visual impaired employees means. Only a very small percent of the employers participating to this study (6%) have heard about the incentives offered for organizations hiring disabled workers, and only 10% of them have previous experience with this category of employees. As the literature demonstrates, the employers who have experience in working with disabled employees express a more open attitude toward hiring workers from this group. This means that increasing the number of employers who hire disabled persons would contribute to the development of more favorable representations and attitudes regarding the visual impaired job candidates and employees.

The findings indicate the participants' lack of awareness about employers' responsibilities with respect to the non-discrimination principles. Even if the Romanian legislation is very clear and strict regarding the disabled persons' rights, the majority of the employers surveyed openly admit that they do not want to hire disabled persons. Besides the direct discrimination which can be noticed in these cases, we can also identify the presence of indirect discrimination. That means the existence of some apparently neutral criteria which in fact decrease their chances of getting a job. For example, the requirements for the jobs include graduation of higher education programs, professional courses, work experience, qualification certificates, and on average, disabled persons satisfy in a lower degree these criteria than the other categories of persons.

On the other hand, analyzing the abilities required for the available jobs in the tourism services, we can notice that disabled persons could very well have all these qualities, since the abilities that candidates must have don't include visual acuity. Consequently, there is a need for the employers to be sensitized towards the possibility of hiring disabled persons.

Further research is also needed which to analyze more in depth the employment problems faced by the visual impaired persons, to identify the most effective strategies that can be implemented according to the specific conditions of the disabled persons. Considering factors such as the amount of usable vision, gender, and the presence of other disabling condition which are found to influence the employment rate (Grow, 2004), further analysis should develop strategies for

increasing employment according to the specific characteristics of each subcategory of disabled persons.

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SUSTAINABLE DEVELOPMENT AND LIFE-CYCLE ANALYSIS

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Abstract. LCA can give opportunity to a special kind of analysis for sustainability's regional aspects or corporations' responsibility and steps taken towards sustainability too. It can be a basic tool to measure environmental performance or to develop eco-efficiency (factor 4, 10, 20). Analyses have shown that it can be used to measure the movements to the direction of sustainable development if time series of data stand at disposal. In connection with sustainability we regard it very important to spread life cycle effect analysis to the field of energy production too. Energy production came to the focus of attention in a double way. On the one hand the long run secure way of energy supply, the accomplishment of both the EU's and Hungary's strategy is a major question, focusing on the ever longer stocking of fossil fuels and on the larger share use of renewable resources. On the other hand more and more emphasis is put on environmental effects, firstly on the reduction of green house gases but of other effects as well, and on the improvement of eco-efficiency too. Several effect studies were made when forming the Hungarian energy strategic concept which besides the aspect of economic efficiency put emphasis on the analysis of carbon-dioxide emission too. But to now no life cycle based comparative analysis has been accomplished the energetic use of different primary resources. This would be very useful though, when we aim to measure the average environmental effects of the domestic energy mix or the external effects of distinct energy resources. This need is emphasized even more by the analysis of alternative resources. If all input and output side effects can be analysed complexly in a life cycle framework based on 1 MJ produced energy, by their contribution to global problems we can compare the environmental effects of distinct resources used in energy production, and its eco-efficiency indicator. This can serve as additional information when trying to make economic regulations more perfect.

JEL Classification: Q010

Keywords: sustainable development, life cycle, energy production, renewable resources

1. Introduction

The phenomena and definition of sustainable development has been present and well-known in the public for the last 20 years, even though meeting its requirements in practice can be argued. So many analyses were published on the issue of the phenomena itself both on global and regional levels in the last 20 years that it would be very difficult to say anything new on the matter. It can only be

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worth focusing on conceptions to enhance its efficiency or analyse the accomplishment of different levels of strategies.

Sustainability as a concept has become well known and generally accepted, we can even risk saying it has become fashionable without having fulfilled any of its objectives in some cases. Sometimes theories only work as a basis to give reasons for some political parties of their acts, to make propaganda of their policies. At the early days several representatives of the thought of sustainability narrowed the definition to the sustainability of economic growth. Today environmental economists use a definition of sustainability which includes three pillars of strategic foresight. The economy has to develop in such way which respects environmental aspects, in order to secure ecological balance can be kept in the ecosystem, and development can be able to meet social requirements at the same time. This is argued as well, as economic growth requires more and more economic resources and we face over-consumption of non-renewable resources, while on the output side waste ratio is increasing. Besides non-renewable resources there are some problems with the renewable resources as well. Let's only think of wasting water or the worsening of drinking water's quality, which is a severe risk factor for the population in the 21st century. Of course, if we think of development not as material growth and the larger number of population, but as a mental development of Mankind, than reserving the status of the Earth and its fauna can be possible and the sustainable development. Herman Daly put it as "*sustainable development is achieving a permanent social welfare without growing faster than what the ecological factors enable us to.*" Scientific researches gave more and more sophisticated definitions and formed the theories which can determine sustainability considering the growth of population and the stock of natural resources over the long run. These theories more or less influenced the way of development themselves. Mathematical models were used to calculate what kind of self restraint or enhancement of efficiency would be needed in using the stock of natural resources in order to reach a 4, 10 or 20 environmental criteria.

Strategies of sustainable development in a nutshell

Key questions of the world's sustainable development are energy, industrial development, atmosphere and air pollution, and climate change, and the economic growth of the developing countries. Energy consumption has grown very much in the last years in the developing world that is why it became a major focus of requirements to enhance energy-efficiency and improve the share of renewable energy resources. The sustainability strategy of the United Nations sets the task in the framework of two year programs until 2017.¹

The sustainability strategy of the European Union sets a long run objective of the EU, it is a comprehensive concept which influences each and every policies and steps taken by the EU and requires to formulate economic, environmental and social policies to strengthen each-other. Its principals and objectives – economic prosperity, social just, the protection of the environment and international responsibility – are to be accomplished by focusing the following main fields of priorities:

- Combat against climate change and the improvement of energy management, more environment friendly ways of transportation;
- Making production and consumption more sustainable;

¹ <http://www.un.org/esa/desa/aboutus/dsd.html>

- Careful use of natural resources;
- The protection of human health;
- Strengthening social cohesion,
- Proper treatment of demographic changes and migration; and finally
- Combat against poverty and improvement of sustainability on a global level.

It was a Hungarian proposal to put more emphasis on social and regional cohesion in the document, to include the reduction of disadvantageous effects of climate change among the objectives, the improvement of resource-efficiency in connection with waste management, and the approval of cultural diversity and the EU-level funding of including sustainability in education.

The Hungarian strategy of sustainability was only accepted in 2007 July, after lengthy preparations, its main objectives follow those of the EU's and it seems to be encouraging that the proper use sustainability conceptions can be followed through the text of the strategy. „We have to accept and make it acceptable that sustainability can not be achieved without the limitation of material consumption.”

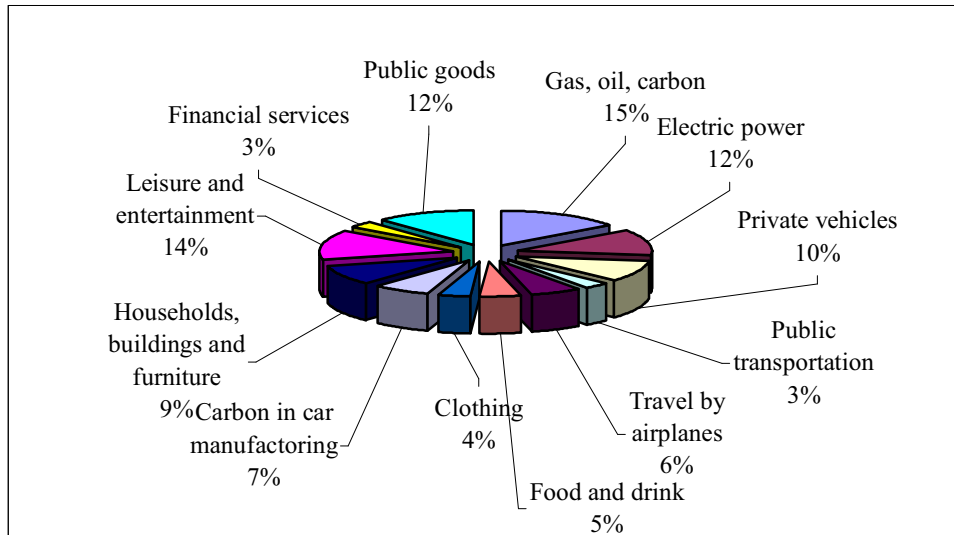
Measurement of sustainable development

Chronologically, the main steps of sustainable development are: Rio Conference (1992), Earth Summit in Johannesburg (2002), and working out sustainability strategy, followed by the ten year-long program of sustainable production and consumption which was started in Marrakesh. The newer theories which were born by these occasions can be connected to different levels of the measurement of sustainability. One of these methods is the so called *ecological footprint* (Ress, 1992), - which shows the extent of land and water surface in acres needed to achieve a certain level of welfare – and the methodological determination of its calculation (Ress and Wackernagel, 1995). Similar to this, but was later invented the definition of *carbon footprint*, which measures the effects of human activity as carbon-dioxide unity. It is made up of two parts, the primary footprint is the emission from direct fossil energy use, while the secondary footprint is connected to the life-cycle emissions. For example a Budapest – Faro return journey by air results in a 709 kg CO₂ carbon footprint for one person. (<http://www.carbonfootprint.com/>).

The threefold performance rating method (three bottom line – TBL) is connected to the measurement of sustainability as well. This method aggregates the economic, environmental and social aspects of a corporation's activity. The definition was invented by Elkington (1994) but we can meet it in several other works as well. (Brown et al., 2006).

Global Reporting Initiative, GRI was invented to give quantitative analyses of the TBL. This is a relatively young (1997) method which contains subjective elements as well. The aim of the third generation of GRI (often referred to as G3) to give a reliable and creditable framework for preparing sustainability reports which helps us to form a coherent sustainability framework to judge corporate responsibility.

Figure 1: An average person's carbon footprint



source: http://www.carbonfootprint.com/carbon_footprint.html

Reports can be used to reach several objectives, like:

- To *measure*, judge and compare sustainability performances,
- To *illustrate* how a corporation can influence requirements reacted to sustainability,
- To *compare* sustainability performance in time and with others.

In 2006 1300 firms have already prepared sustainability reports on their social responsibility.

In order to judge corporations' social sustainability the definition of *social footprint* has also been invented by McElroy (2007a), which - similarly to the ecological footprint - measures the effects of „antro-capital“ (human + social + buildings) needs and focuses on the sustainability of the corporation's behaviour. Social capital includes social net, and the knowledge which is needed to ensure efficient public activities. By human capital we mean the health status, knowledge and practical experience of people, human rights and ethical questions. Finally, buildings mean infrastructure, roads and built-in capital. Social quota is a hybrid indicator which measures social performance as a social activity pursued to reach ecological aims. The main elements of calculation can be summarized as follows:

Figure 2 : Calculation of the social footprint²

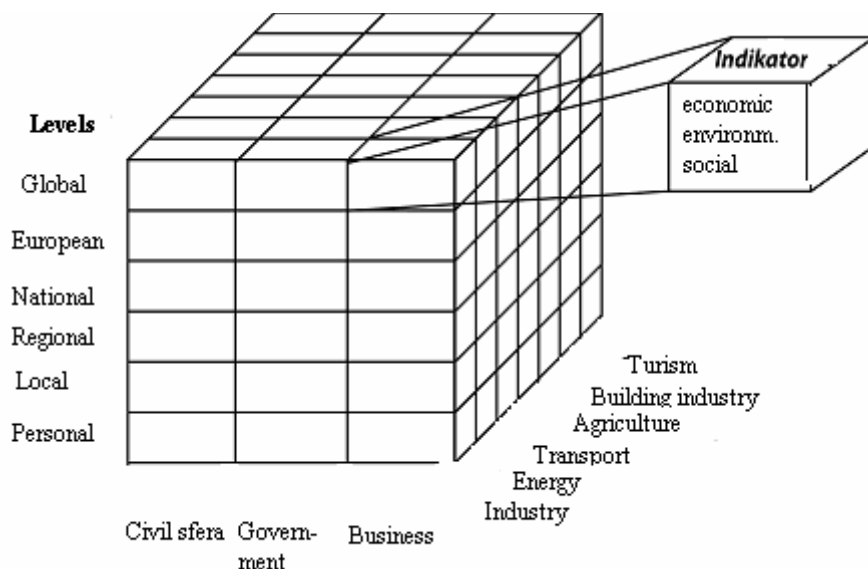
Judging ecological performance	Full environmental print Share of limited natural resources	=	Ecological quota (EQ)	Smaller values are better EQ ≤ 1 sustainable EQ ≥ 1 not sustainable
Social performance judgement	Full social print Share of the auto-capital supply	=	Social quota (SQ) or Social footprint	Higher values are better SQ ≥ 1 sustainable SQ ≤ 1 not sustainable
Corporate sustainability	Ecological quota ≥ 1 (EQ)	≤ 1 and	Social quota (SQ)	If true, sustainable If not true, not sustainable

Besides social footprint the *footprint of global warming* is used as well, which can be thought of as an alternative social footprint. This is a quantitative measurement of a corporation's emission related to the objectives to be achieved, and measures per head or per corporation CO₂ emissions for one year long periods. Performance is sustainable if emission is not higher than a given limit, which is in synchrony with the emission objectives, which is 350 ppm by 2150 for example (McElroy, 2007b).

Judging sustainable development and its measurement on different levels, in different branches of the economy and from the point of view of different social actors can be analysed in connection with the indicators of three pillars (economy, environment and society). This multidimensional approach of the problem is shown by the following figure based on Jänicke (2005). Indicators of sustainable development are important elements of environmental accounting and this question appears as a new direction in research and development as well, as a newer method of measuring and judging sustainability. According to Jänicke judgement can happen both *ex-post* and *ex-ante*, top-down and bottom-up ways as well.

² Source: The Social Footprint Introduction and Proof of Concept, Center for Sustainable Innovation 2007, <http://www.sustainableinnovation.org/Social-Footprint.pdf>

Figure 3 : Dimensions of environmental management and indicators of sustainable development



Sources: Own figure based on Jänicke (2005)

It can be thought of a monitoring device for the accomplishment of the strategy but besides it is a way of moving towards environmental accounting and national green GDP as well.

2. Life-cycle analysis

Life cycle analysis or analysis from the cradle to the grave means the measurement of materials, products or services entire environmental effects including:

- The energy which was used by the mining, production or is incorporated in the material itself,
- The effect of mining on the local environment,
- The loss of natural resources,
- The use of fields, waste disposed to the environment, and the effects of transportation during the whole life-cycle,
- Climate change and loss of the ozone layer,
- Environmental effects of use and
- Risks on health.

Several research projects have contributed to the methodological development of life-cycle analysis in the last 15 years, a standardisation process accompanied the sophistication of the measurement methods as well. (ISO 14040 standard family). Even though these analyses were mainly based on natural sciences, several of the social aspects were included in them as well. In the last years, as more and more emphasis was put on the questions of sustainability it became more and more

important to analyse the three pillars (economic, social and environmental) jointly, so it is common sense to add economic and social indicators to life-cycle analysis to form a multidimensional measurement method which brings us closer to a more perfect way of measuring sustainable development and its accomplishment, mainly if besides new kinds of eco-efficiency indicators are considered as well.

Sustainable development and life-cycle analysis are closely related to each other. Life cycle analysis is a tool which helps measuring the movements towards sustainable development. As newer and newer theories and definitions were invented to improve the achievement of objectives which were set to save the Earth, so were developed the techniques and methods of life-cycle analysis as well. In the early days the analysis of environmental effects stood in the focus of attention, by today analyses backed by mathematical models aim to estimate complex social effects too. A good example of this is Qiang Xu's study (2005) which introduced the framework of „*econological*“ *input-output effect monitoring*. Etimologically this can be regarded as a new method, even though it uses different quantitative information too. „Econologia“ consists of the attitudes to environmental regulations, the state of economic development, technology and meeting social requirements. Even though there are subjective elements of treating this information, the relative differences can be treated well within the given framework. According to Schenck (2007) LCA can be regarded as an indicator of sustainable development as when analysing the effects by categories, changes in time can be measured well, let it be about acidity, greenhouse-effect or using natural resources. Naturally the raw could be continued as each of those categories which are parts of the chosen method give well-measurable data for the analysis.

The methods of life-cycle analysis are permanently sophisticated. On the one hand, they are made more punctual, while on the other hand new methodological directions will be worked out as well. One of the directions of development is *life-cycle management (LCM)*. This is a complex method to measure the economic, social and environmental pillars of sustainable development, to which more and more factors will be integrated, and the measurement and comparison of distinct alternative's costs are also included in LCM. In several cases multivariable analysis is used when researching industrial technologies' sustainability. LCA's use in integrated product policy or in eco-design as a helping tool can be regarded as a new development. Green products or goods with eco-labels as indicators of sustainable development can be declared based on life-cycle analysis. In practice LCA can be used in each cases sustainability report are prepared on products, or production processes of goods, or environmental performance of corporations are analysed. Besides, this econometrical method can not only be used to measure environmental aspects of products, production systems or services but the environmental effects of economic growth itself. (Tóthné, Buday-Malik, 2006)

An even newer development path of life-cycle analysis is the calculation of life-cycle costs (which was known as IOLCA earlier but is rather known as LCC – life-cycle cost today). LCC, as a tool to help decision makers was placed in a framework of several and more detailed levels by Connaughton et. al., (2007). Determining life cycle cost comes to the focus of attention in several cases when the aim is to calculate the economic costs and benefits of environmental developments or how more environment-conscious consumers will rate them. Horizontally the method considers all possible effects from the cradle to the grave

while vertically the three pillars of sustainability give a framework to these calculations. Effect studies with life cycle costing, LCC can play an important role in founding decisions. Calculations like these have already appeared in power tool manufacturing, in the one-and more way beverages packing comparisons³, in building investments etc. Actually, environmental life-cycle analysis and LCC used together optimise environment focused product planning even in during the planning process, considering both profit and environmental effects. Though the method has been known for 10 years, it has been used by an even narrower circle than life-cycle analysis in Hungary, or is used independently, only considering cost aspects.

3. The use of LCA for measuring regional sustainability

During our researches we tried to use life cycle analysis besides usual product or production process analysis for regional sustainable development analysis as well. The thought to adopt the method to measure the environmental effects of producing one unit of GDP and to compare the regional differences in their values came during the life cycle analysis of the environmental burden of the Hungarian energy mix. The analysis was made using the following model with SimaPro software.

Figure 4 : Modelling LCA for regional or national levels (own work)



The adoption of LCA to regional level required (as a standardized use of LCA) to:

- Set the system boundaries,
- Determine the functional units,
- Determine the requirements regarding the quality of the data,
- Collection of data and finally

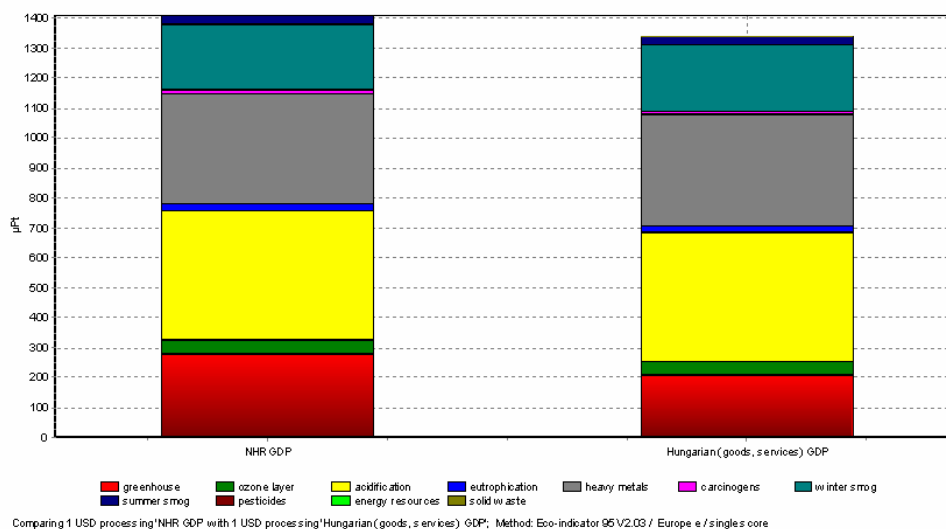
³ Effect study on the long run sustainability of beverages packing in Hungary; Summary of preliminary results, 18. 08. 2004 GUA-GVM, <http://www.efosz.hu/letoltes/hatast.doc> ; the paper studied the cost effects of refilling and product fee of beverages packing.

- Finishing the effect analysis.

In our case the system boundaries are the official border of the region, the functional unit is 1 GDP. Theoretically, the starting point is the value of GDP produced in a year, followed by setting the inputs with the help of the input-output matrix, and collecting output side emissions from environmental statistics. Uncertainties met during the research:

- There is no reliable statistical data on material- and energy flows. Data on energy flows' structure is not perfect, but would be essential from sustainability's point of view. As far as we know a material flow accounting process is being worked out (Kohlheb et al., 2006), but we have not met time series like this up to now.
- Official borderlines (in case of regions) and environmental agencies territories are different from each other, so emission information are uncertain as well.

Figure 5 : Environmental burden by a unit of GDP, distribution by effect categories



The lack of proper data made us build our analysis on industrial branches information and we have not calculated with material flows, used only energy, field, water and fertilizer as inputs, we have not considered the transportation of imported materials.

After the collection of data we made an inventory:

- Based on the national or regional material and energy flows (depending on the type of analysis) data were set in a detailed input-output table with the use of natural units;
- On the input side the quantities of materials, energy and other resources were set (field, water, energy);

- While on the output side the value of goods and services were taken to the market in Ft (the produced GDP), and all of the emissions (gas, both fluid and solid) were set in kilograms

This was followed by a software helped analysis of the data and evaluation.

Though the life cycle analysis accomplished this way can not be considered as entire, it can give interesting insight to connections in the background. The analysis showed that a higher environmental burden is set for the relatively lower level of GDP than the country average even though there are no major differences in the contribution to global problems. The major environmental effect was acidity. The analysis gives a new aspect to the economic accounting of environmental effects, so with the help of these econometrical methods we can gain a more realistic picture of development as well.

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A COMPARATIVE STUDY ABOUT THE PURCHASING MANAGEMENT OF NPR GOODS AND SERVICES

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Abstract. So far, the purchasing of non-product related goods and services (NPR) has only gained limited attention from managers and researchers. For a variety of reasons, only a small part of all purchasing activities in an organization is actually carried out by the purchasing department. In particular, the purchasing of NPR items and services often seems to take place without the involvement of the purchasing department. In addition, despite the huge savings that reportedly are possible by involving a purchasing specialist in NPR purchasing activities, many managers dedicate only modest attention to these opportunities. We investigated how is organized the NPR purchasing process in three dutch companies and three romanian companies. Based on the empirical findings we made a comparative study about the purchasing management of NPR goods and services. In this paper, we present a theoretical framework of monitoring and controlling the NPR purchasing process, framework that we developed based on literature review and empirical findings. Also, we draw conclusions and formulate recommendations for managers about how they could more effectively organize their purchasing function.

JEL Classification: L80, M19

Keywords: purchasing management, NPR goods and services, strategy

Introduction

Until recently, academic interest in purchasing was very manufacturing oriented with an emphasis on production buying. The purchasing of non-product related goods and services (NPR) has only gained limited attention from management and researchers (Fearon & Bales, 1995 and Telgen & Boer, 1995).

NPR goods and services are known by many names: indirect goods and services, goods not for resale, non-bill of materials. No matter how they are called, the NPR purchases include all goods and services other than raw materials,

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production items, and MRO supplies, such as: capital equipment (e.g. vehicles, lathes, etc); services (e.g. health care plans, insurance, advertising, legal assistance, and telecommunications).

The obvious characteristic of NPR goods and services is that they are not used in the primary production processes. They are purchased in order to support and facilitate all other activities within the organization. Non-product related purchases have a number of characteristics (Telgen & Boer, 1995):

- they comprise a wide range of goods and services, which are often purchased from an even larger number of suppliers;
- they are often time consuming as many are non-standardized items which are usually purchased in small orders;
- they show high end user involvement in the tactical purchasing phase which leads the NPR purchasing process to be spread out all over the company;
- in total there is a lot of money involved in NPR purchasing; however NPR typically receives limited management attention.

A dominant factor to be considered with regard to the importance of NPR purchasing is the yearly amount of money involved. In many services and government organizations such as banks, accounting firms, and hospitals, the total purchase volume can be regarded as purchasing expenditures on non-product related goods and services. In industrial and retail organizations this will naturally not be the case because a considerable part of the total purchase volume consists of purchasing for primary process. However, in the purchasing of NPR goods and services huge amounts of money are involved.

Large corporations typically spend over 30 % percent of their revenues on NPR purchases. AT&T, for example, found out that they spent 60% of their \$20 billion-a-year purchasing bill on NPR goods and services such as travel and car-rental, real estate, computer hardware and software, services, office furniture and supplies, services, cleaning materials, etc. Another example is Xerox who spent almost 73% of their \$6 billion-a-year total spend on NPR goods and services (van Weele & Rozemeijer, 1996).

Another typical factor regarding NPR purchasing is the low attention from top management. NPR purchasing is not seen by managers as a necessity, compared to the purchasing of items and services for the primary process. As a consequence, structural attention and management of purchasing of NPR goods and services is not considered as a tool for improving effectiveness and reducing expenditures. Because of the lack of clear and direct insight in the size and contents of the purchasing volume of non-production items and services, managers are missing out opportunities for adding value to their organizations. Is top management sufficiently aware of what is going on in the company? Who buys what? Where? With what frequency? Etc.

Obviously, top management cannot and should not want to know about every purchasing transaction. On the other hand, leave it completely to the departments seems a too costly strategy, given the time and money involved.

Therefore, the question arises: what is the optimal control approach for top management regarding NPR purchasing? What do they need to know and how do they get this information? One of the obvious control tools would be to involve one or more purchasing professionals (e.g. a professional purchasing department).

1. Literature review

A number of previous studies (Fearon & Bales, 1995, U.S. Bureau of the Census, 1991) indicate that the role of the Purchasing Department is much smaller in the purchase of nontraditional (non-product related) goods and services than commonly believed. These 'nontraditional' (non-product related) areas, such as insurance, utilities, consultancy, travel and advertising, are likely to be purchased without the involvement of professional buying practice and skills. For example, the Center for Advanced Purchasing Studies (CAPS) in a study in 1993 (Fearon & Bales) found that in a surprisingly large percentage of firms, the Purchasing Department had no input to the purchase of nontraditional goods and services (e.g. in 39% of the firms, there was no involvement in the purchasing of services, in 55% of the firms there was no involvement in the purchasing of utilities).

Similarly, in another study made in 1995, Center for Advanced Purchasing Studies (CAPS) found that from the total of \$ 140.3 billion purchased by the 116 organizations, only 41 percent was spent by the purchasing department, 59 percent was spent outside of the purchasing department. From these 59 percent: 41.55 percent was spent by some other nine departments (transportation, finance, administration, human relations, etc.) and for 17.45 percent the study couldn't identify the buyers. The research highlights the purchase dollars spend of the total 116 organizations for the largest ten goods and services. The purchasing department apparently had very little input in the purchase of the majority of services and also had a smaller input in the purchase of non-product related goods.

Results of a recent Purchasing Magazine survey of 1000 corporate buyers nationwide show that purchasing departments take on many activities for service procurement that were once left to the using departments. From a total of 1000 respondents: 70 percent were involved in contract negotiations; 63 percent were involved in supplier selection; 58 percent were involved in contract management; and 5 percent were involved in setting specifications.

As the study shows, the purchasing department has become more involved in the tactical procurement of NPR goods and services. Apparently, these purchasing departments have started to realize that there are numerous opportunities in the NPR procurement and that they have the skills and expertise to ensure that the company receives the best value. In table 1 we have tried to synthesize the major reported benefits of involving the purchasing department in the NPR purchasing process.

While benefits of involving purchasing department in the NPR purchasing process may be numerous there are also several major challenges of involving purchasing department in the NPR procurement.

Summarizing, the literature suggests that:

- purchasing' s involvement in NPR is still very limited and problematic;
- involvement could offer many advantages, including offering increased control to top management;

Table 1: Major benefits and challenges of involving PD in NPR purchasing

Major benefits of involving PD in the NPR purchasing	Major challenges of involving PD in the NPR purchasing
<ul style="list-style-type: none"> - cost savings - service and quality improvement - improving product position in the marketplace - reducing product or service cycle time - improved process efficiency - greater compliance to pre-negotiating contracts - controlled costs - legal protection - a better informed and prepared supplier 	<ul style="list-style-type: none"> - gaining the acceptance, confidence and cooperation of the using department - capturing attention of top management - developing a value proposition for key customers and management - limited availability of NPR purchasing data and information - difficulty to assemble teams and other resources needed to control NPR spending - rivalries among separate business units or managers

2. A comparative study about the purchasing management of NPR goods and services

In the attempt to develop a model for the NPR purchasing process we made some interviews and questionnaires in order to see how are things in practice. With the interviews and the questionnaires we wanted to find out the answers to the following questions:

- If the NPR goods and services are bought outside of the purchasing department?
- How often does this happen?
- Which of the NPR goods and services are bought more frequently outside of the purchasing department?
- Is top management interested in NPR purchasing process?
- If the NPR purchasing process is controlled by top management?
- Etc.

The questionnaire that we made (see Annex 1) has three parts. The first part is about the general data of the companies (names, objective, number of employees, turnover, etc.). The second part contains information about the purchasing department. The last part of the questionnaire is about the NPR purchasing process.

We have sent the questionnaires to fifty dutch companies from different area, most of them were production companies. We selected the companies from Yellow pages and all of them were big companies.

After we received the answers to the questionnaires we made an interview in three of the companies. The same interview was conducted in three Romanian

companies in order to make a comparative study about the NPR purchasing process.

The interviewees were the purchasing managers from the following companies:

- Phillips (Eindhoven);
- Urenco (Arnhem);
- Nike (Hilversum);
- SC Adiss SA (Baia Mare);
- SC Faimar SA (Baia Mare);
- SA Amisa SA (Baia Mare).

In all three dutch companies, general management recognized the importance of the NPR purchasing process. General management realized the great opportunities of the NPR purchasing and have tried to take advantage of them.

The general management of Philips realize that if they would be able to organize and coordinate the NPR purchasing process they will save a lot of money. In order to achieve this they introduced special techniques for evaluating the NPR purchasing. Also, they created a special program called OCOO Program (Other Costs of the Organization) in order to improve the efficiency of the NPR purchasing process.

The program started with the classification of the NPR goods and services in eight main categories. These categories were divided up in forty five markets. Special teams were created not only with the specialists from the Purchasing Department, but also with other specialists from other departments in the organization. These teams collected data about the NPR purchases from the organization. After the data have been collected, they were analyzed and special strategies for the NPR purchases were created. The specialists from the Purchasing Departments negotiated special contracts (umbrella contracts) with the potential suppliers. Within these contracts, internal customers are allowed to order NPR goods and services from the selected suppliers and with the prices that were established before. With the OCOO Program, management of Philips achieved a cost reduction of 1.3 billion dollar.

General management of Nike realized the great potential of the NPR purchasing and they started to reorganize the entire purchasing process. In this respect, they created a sub-department to take care of the NPR purchases. This sub-department has four employees who started to purchase at the beginning office supplies, mobile phones, postal and consultancy services. The specialists from this sub-department convinced the internal clients about the advantages that they would benefit if the NPR goods and services will be purchase though this sub-department. Management set up in this case clear objectives and strict procedures for the purchasing of NPR goods and services. While the dutch companies are interested and they apply the latest findings in the area, the Romanian companies don't give too much attention to these purchases.

From the romanian companies, the NPR purchasing process is best organized at SC Faimar SA. At this company there is a clear methodology for the purchasing process of the NPR goods and services. Also, general manager is interested in the NPR purchasing and knows what is going on in the company: who is buying what? from which supplier? .This fact is obvious in the way that NPR purchasing is organized and controlled. In this company it has been established

very clear what types of NPR goods and services are bought through the Purchasing Department and what types are bought outside.

SC Adiss SRL has just started the process of reorganization of NPR purchasing. A big step was made because the general manager and the manager of the purchasing department realized the great importance of the NPR purchases. In the process of reorganization of the NPR purchasing, they are trying to centralize all the NPR purchases inside the Purchasing Department.

At SC Amisa SA NPR purchasing is not considered a priority neither for general manager, nor for manager of the Purchasing Department. This can be observed in the way that NPR purchasing process is organized. In this case, there are not clear define procedure for the NPR purchasing process and it is not clear who is responsible for the purchasing of each NPR good and service.

General manager does not know the answer to the following questions:

- How much money are spent for each NPR purchases?
- Who does the purchasing for each NPR good or service?
- From which suppliers?
- Etc.

The lack of clear purchasing policies and procedures influences the organization of the entire NPR purchasing process.

Based on the results from the questionnaire and interviews we can draw some conclusions:

- The Purchasing Department's involvement in NPR purchasing is still limited and problematic because of the frictions between the specialists from the Purchasing Department and from the other departments in the organization;
- The involvement of the Purchasing Department in the NPR purchasing process can offer many advantages, including improved control over the NPR purchasing;
- The problem of involving or not the Purchasing Department in the NPR purchasing process is ignored sometimes by management.

3. The framework for analyzing the NPR (non-product related) purchasing process

In the development process of the framework we choose certain approaches/courses of action. For example, instead of working with entire category of NPR goods and services at the same time we split them into seven main NPR categories (accommodation, professional services, human resource expenses, sales related, automation & communication, office expenses, not coded), because each NPR category has its own characteristics and importance and we probably need to use different tools and methods in controlling and managing different NPR categories.

Based on the data collected from possible sources of information for each NPR category (internal and external data) and on the policies & objectives for NPR purchases, the strategic importance of each NPR commodity can be defined and the strategy per NPR commodity can be formulated. Taking into account these strategies and the possible activities by the Purchasing Department for adding value to the company the possible actions that could be done by the Purchasing Department for each NPR category can be determined.

After taking into consideration all these factors and maybe some other company specific factors, management can make a list of all the activities/actions that the Purchasing Department could do. Based on this list of actions and on the company specific factors, similar actions can be combined and also other logical combinations can be made. For each action or combined action the benefits and costs (money, time, etc) may be estimated and the management can choose the actions that the Purchasing Department should do.

The output of this framework are theoretical suggestions how to split responsibilities and activities between the Purchasing Department and other departments. The framework is an instrument for analyzing the NPR purchasing process and deciding what should be done through Purchasing Department and what should be done OPD. This will be the starting point in the attempt to control and manage purchasing done outside of the Purchasing Department.

Within the framework we want provide a list of possible ways of finding the information from within and outside the organization. Some examples of possible sources of information for managers could be the business reports, the contracts, the purchasing orders, the budgets, the invoices, etc. Also we want to suggest possible configurations (structures) of this information that enable managers to draw useful conclusions. Regarding the reporting system, we will try to develop new procedures that feed back regularly actual performance data to the manager in order to compare actual performance with the standard or past performance, evaluate the results and apply a reward or punishment system.

We are planning to test the framework in a number of organizations and based on the feed-back received from practice we will improve the framework. Also, the framework for analyzing the NPR purchasing process will be the foundation for further research. Based on the theoretical hypotheses on how to split responsibilities between the Purchasing Department and the others and on knowledge from management control theory we will design a model on how to manage and control purchases done by people outside of the Purchasing Department.

4. Conclusions

The framework presented in this paper can serve as an instrument for analyzing the NPR purchasing process and deciding what the Purchasing Department should do and what it should not do. Because we did not yet test the framework in practice, this framework is theoretical. The implementation in practice might yield new insights on how it should be adapted to the specific needs of each organization. However, this framework can be used by management as a starting point in the attempt to analyze the NPR purchasing process and identify better ways for organizing and controlling it.

A general Purchasing Department with the ambition of autonomously covering all NPR purchases will be unattainable due to excessive organizational inefficiencies and should not be pursued.

Management should refrain from simplistic statements on who should do what but instead provide a robust and clear framework for deciding on how to organize NPR purchasing process. The framework should provide the conditions and rules for a dynamic system that allows for selective involvement of purchasing specialists.

Within a NPR area an internal customer department should be able to perform a purchasing activity autonomously or involve outside specialist. The Purchasing Department should have the freedom to turn down some requests from internal customer in order to focus on the type of involvement where it can add most value. Management has to create conditions in organization so as the Purchasing Department and the internal customer departments to be able to collaborate when consider appropriate and useful.

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Annex1: Questionnaire

Part A. General information

<p>A1) Name of the company</p> <p>A2) Indicate the name of the department, division, business-group, or other organizational part in which are you working</p> <p>A3) Please specify your job title</p> <p>A4) Please indicate the business area(s) of your company</p> <p>A5) Please indicate your organization's annual Sales/Revenue (\$)</p> <p>A6) Please indicate the number of employees in your organization</p> <p>A7) Please estimate the total annual \$ spent by your organization for purchasing</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>1. Construction []</p> <p>2. Services []</p> <p>3. Financial services []</p> <p>4. Trading []</p> <p>5. Manufacturing []</p> <p>6. Pharmaceutical []</p> <p>7. Information technology []</p> <p>8. Telecommunication []</p> <p>9. Transport []</p> <p>10. Other (please specify) []</p> <p>.....</p> <p>.....</p> <p>.....</p>
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A8) Please indicate which one of the following strategies is most appropriate in your organization:

- Cost leadership (the main focus is to continually work at reducing the cost price of the end product)
- Differentiation (the company aims at marketing products which are perceived by the customer by being unique)
- Focus strategy (the company aims to serve a particular, clearly defined group of customers in an optimal way).

B) Purchasing Department information

B1) Please indicate the organizational structure for the purchasing department:

- Completely Centralized (one central unit responsible for all company purchasing)
- Completely Decentralized (business units are responsible for their own purchasing)
- Decentral purchasing with lead buyers or commodity teams (facilitated and supported by a central purchasing group or coordinator)
- Center-led action network (decentral purchasing units with central group for strategy formulation, control and coordination)
- Other (please specify)

B2) Please draw or attach an organization chart of your company indicating the organizational position of the purchasing department(s).

Please give your judgment about the following statements by circling the number which reflects your judgment most accurately on a scale of 1 to 5.

Explanation of the marks:

- 1 = Completely disagree with
- 2 = Predominantly disagree with
- 3 = Neither disagree, nor agree
- 4 = Predominantly agree with
- 5 = Completely agree with

Statements

Statements	Completely Disagree			Completely Agree	
	1	2	3	4	5
B3) Top management recognizes Purchasing function as an important contributor to the competitive position of the organization.	1	2	3	4	5
B4) Purchasing department is involved in strategic and cross-functional processes.	1	2	3	4	5
B5) Purchasing department always defines the specifications.	1	2	3	4	5

B6) Purchasing department is always involved in finding and selecting a supplier.	1	2	3	4	5
B7) Purchasing department always goes for the lowest price.	1	2	3	4	5
B8) Purchasing department takes care of ordering and expediting activities.	1	2	3	4	5
B9) Purchasing department evaluates the buying process and organizes the purchase and supplier documentation	1	2	3	4	5
B10) Anyone in our company is allowed to buy.	1	2	3	4	5
B11) Purchasing department has defined clear authorization limits for all the buyers from	1	2	3	4	5

B12) Please rate the skills for your current purchasing personnel:

	Very Poor	Poor	Good	Very Good	Excellent
Market analysis	1	2	3	4	5
Negotiating with partners	1	2	3	4	5
Managing internal and external relationships	1	2	3	4	5
Planning and organizational skills					
Analytical skills	1	2	3	4	5
Interpersonal communication	1	2	3	4	5
Customer focus	1	2	3	4	5
Managing change	1	2	3	4	5
Ability to make decisions	1	2	3	4	5
Problem solving	1	2	3	4	5
Influencing and persuasion	1	2	3	4	5
Computer literacy	1	2	3	4	5

B13) Please rate the main values that purchasing department adds to your organization:

	Very Often	Often	Seldom	Very seldom	Never
Cost savings	1	2	3	4	5
Improved market and value analyses	1	2	3	4	5
Product/process innovation	1	2	3	4	5
Improved customer service	1	2	3	4	5
Closer and more cooperative relationships with suppliers	1	2	3	4	5
Supplier development	1	2	3	4	5
Simplified administration	1	2	3	4	5
Improved purchasing efficiency	1	2	3	4	5
Inventory reduction	1	2	3	4	5
Improved lines of communication	1	2	3	4	5
Better management information	1	2	3	4	5
Control, focus and coordination of expenditures	1	2	3	4	5
Improved competence of the purchasing staff and internal customers	1	2	3	4	5

Part C. NPR (non-product related) goods and services

Definition NPR goods and services

Non product related (NPR) purchases include all the purchases other than production items, such as:

- Capital equipment (vehicles, lathes)
- Services, which are all those purchases that have a high content of personal input (health care plans, insurance, advertising, legal assistance, telecommunications, etc)
- Goods not used in final product.

C1) Please fill in the table “NPR goods and services” using the explanation below. If you don’t know the exact amount or percent (%) your estimate suffices.

Explanation:

Total annual \$ spent by the organization	Actual \$ spent for each item or category of goods and services annually
% by Purchasing Department	Indicate the % of annual purchases made by the Purchasing Department , meaning those in which purchasing was fully involved in the purchasing decision.
If purchased by other departments	List the department(s) that actually made the purchase and the % spent by them
Number of suppliers	Indicate the number of suppliers for each item or category of goods and service
% from the total spent of the organization	Indicate how much represents (in %) the total annual \$ spent by the organization for each good or service from the total annual \$ spent by your organization
Well managed category	Please indicate if you consider that these categories are well managed or not

NPR goods and services	Total annual \$ spent by organization (millions \$)	% spent by the Purchasing Department	If purchased by other department, indicate name and % spent	Number of suppliers	% from the total spent of the organization	Well managed Y/N
1. Cleaning						
2. Legal services						
3. Travelling						
4. Sales promotion						
5. Mobile phones						
6. Postage & couriers						

LA GESTION DU RISQUE DU TAUX D'INTERET POUR LES CONTRATS D'ASSURANCE VIE

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Abstract. When pricing a life insurance we have to choose the hypotheses on the mortality and on the future evolution of the interest rates. A small variation of the interest rate has a greater impact on the actual value of a life insurance contract than a small variation of the mortality. The paper treats the evolution of the modalities of managing the risk of interest rate, the advantages and disadvantages of each method.

JEL Classification: G22, G11, O16

Keywords: life insurance, interest rate, immunisation, dynamic insurance.

1. Introduction

Le risque de taux d'intérêt peut se définir comme l'éventualité d'une évolution défavorable des taux d'intérêt¹. Tout entreprise est soumise au risque de taux dès lors qu'elle recourt à des créanciers pour lever des fonds ou qu'elle entreprend d'investir des liquidités sur une courte ou longue durée. Lors de l'établissement d'un tarif en assurance vie, on est confronté au choix d'hypothèses sur la mortalité d'une part, et sur l'évolution future des taux d'intérêt d'autre part.

La source d'aléa qui a reçu le moins d'attention est celle qui revêt le plus d'importance. En effet, une faible variation du taux d'intérêt a beaucoup plus d'impact sur la valeur actuelle des prestations d'un contrat d'assurance vie qu'une faible variation de la mortalité.

Dans cet article nous présentons l'évolution des modalités de gestion du risque du taux d'intérêt. Le risque de taux d'intérêt peut être couvert par des méthodes statiques et dynamiques. Les méthodes fondées sur la durée et la convexité sont des méthodes statiques qui supposent la définition explicite d'un horizon de gestion. Les procédures dynamiques proposent d'adapter le type de

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¹ Jeannicot K., Ben Larbi S, (2004), *Management des Risques Financiers et Marchés Organisés*, Economica, Paris

gestion des taux d'intérêt en fonction des événements économiques pertinents. Les sociétés d'assurance bénéficient des gains d'une gestion active sans augmenter les risques d'insolvabilité.

2. Les stratégies de protection contre le risque de taux d'intérêt

Les stratégies de protection contre le risque de taux d'intérêt cherchent le plus souvent à se garantir un taux de rendement cible au terme d'un horizon d'investissement donné, quelle que soit l'évolution des taux d'intérêt sur le marché. Ces stratégies peuvent être classées en deux catégories : les stratégies d'immunisation et les stratégies de couverture (hedging). Bien que ces deux stratégies visent à protéger les investisseurs contre toute évolution défavorable des taux d'intérêt sur le marché, elles reposent sur des fondements méthodologiques différents et ne poursuivent pas les mêmes objectifs en termes de taux de rendement.

Moll² a débattu l'idée que les engagements et les placements doivent être tous évalués au même taux d'intérêt et que les actifs peuvent être investis pour réduire les fluctuations dans le surplus provenant des changements des taux d'intérêt. Bien que n'ayant su développer un argument mathématique rigoureux, Moll avait saisi le point caché de l'immunisation.

La variation des taux d'intérêt peut induire un risque particulier qui est un risque de marché. La hausse des taux augmente le coût de l'emprunt et leur baisse diminue le rendement du placement. L'impact d'une modification des taux est double³ : un effet instantané sur le capital et un effet plus long sur le revenu procuré par les titres. Ainsi, une hausse des taux d'intérêt a un effet négatif à court terme sur la valeur du capital, mais un effet positif à plus long terme, car les coupons versés pourront être placés à un taux plus élevé. Une baisse des taux agit de façon symétrique.

Le taux d'intérêt est un élément important de tarification, plus le nombre de contrats vendus par une compagnie d'assurance est élevé, plus les écarts relatifs entre « prévisions » et « réalisations » sont importants. Dans ce cas il n'y a aucun effet de compensation, mais au contraire un effet de cumul, car le même taux d'intérêt réalisé s'applique à tous les contrats. Ainsi, à cause d'un mauvais choix et gestion de taux d'intérêt, une compagnie d'assurance peut se retrouver dans une situation financière difficile.

3. Méthodes utilisées pour la gestion du risque du taux d'intérêt

Les premières méthodes utilisées pour la gestion du risque du taux d'intérêt sont celles statiques, basées sur le calcul des indicateurs qui mesurent l'influence de la variation du taux d'intérêt sur les instruments financiers. Les procédures dynamiques proposent d'adapter le type de gestion des taux d'intérêt en fonction des événements économiques pertinents. Les sociétés d'assurance bénéficient des gains d'une gestion active sans augmenter les risques d'insolvabilité.

² Moll, D., (1909), 'On the Effect of a Rise or Fall in Market Value of Securities, on the Financial Position and Reserves of a Life Office', *Journal of Institute of Actuaries*, nr. 43, 105-107.

³ Rolando, T., Quittard-Pinon, F., (2000), *La gestion du risque de taux d'intérêt*, Economica, Paris.

3.1. Les méthodes statiques

On va analyser deux indicateurs à la base desquels on peut quantifier l'influence des fluctuations des taux d'intérêt sur les contrats d'assurance vie : la durée et la convexité, aussi que la stratégie d'immunisation d'un portefeuille.

3.1.1. La durée et la convexité

La durée permet de mesurer la sensibilité d'un instrument financier aux variations des taux d'intérêt. Un portefeuille est immunisé contre le risque de taux d'intérêt si la durée du portefeuille est égale à l'horizon de gestion de l'investisseur. La valeur actuelle d'un flux des liquidités futures escompté au taux d'intérêt i est :

$$VA = \sum_{t=1}^n C_t \cdot (1+i)^{-t} \quad , \text{ où } C_t - \text{ les flux des liquidités} \quad (1)$$

t – le moment auquel les liquidités surviennent

En 1938, un actuaire britannique, Frederick Macauley, a introduit la formule de la « durée » :

$$D = \frac{\sum_{t=1}^n C_t \cdot t \cdot (1+i)^{-t}}{VA} \quad (2)$$

La dérivée première de la fonction par rapport à i nous donne une mesure de la sensibilité de l'instrument à cause du taux d'intérêt :

$$\text{sensibilite} = \frac{\partial VA(i)}{\partial i} = -(1+i)^{-1} \cdot \sum_{t=1}^n C_t \cdot t \cdot (1+i)^{-t} \quad (3)$$

La sensibilité et la durée d'une série des flux sont liées par la formule de Hicks (1946):

$$\text{sensibilite} = \frac{\text{duration}}{1+i} \quad (4)$$

La durée du portefeuille possède une propriété importante : c'est la durée au terme duquel le rendement financier du portefeuille devient (approximativement) égal à son taux de rendement actuariel, indifféremment de l'évolution des taux du marché.

Mais les méthodes basées sur le calcul de la durée ne mesurent pas suffisamment précisément le risque et pour améliorer la précision il faut tenir compte de la convexité.

La convexité est la dérivée de second ordre de la valeur actuelle divisée par la valeur actuelle :

$$C = \frac{\partial^2 VA(i)}{\partial i^2} \cdot \frac{1}{VA(i)} = \frac{\sum_{t=1}^n C_t \cdot t \cdot (t+1) \cdot (1+i)^{-(t+2)}}{VA(i)} \quad (5)$$

3.1.2. L'immunisation

Redington (1952) a déclenché la création de ce que nous appelons aujourd'hui la théorie traditionnelle de l'immunisation. En utilisant la durée et la convexité, un portefeuille des placements et des engagements peut être immunisé contre les variations du taux d'intérêt.

Il existe trois critères qui doivent être respectés pour qu'un portefeuille soit immunisé :

- la valeur actuelle des actifs doit égaliser la valeur actuelle des passifs ;
- la durée des actifs doit égaliser la durée des passifs ;
- la convexité des actifs doit être supérieure à celle des passifs.

Nous supposons qu'il existe un équilibre entre l'actif et le passif au moment initial et que la structure des taux est plate, mais peut subir des mouvements parallèles⁴. Dans ce cas une condition suffisante d'immunisation du bilan est donné par les relations suivantes⁵:

$$\sum_{t=0}^n A_t \cdot e^{-it} = \sum_{t=0}^n L_t \cdot e^{-it} \quad (6)$$

$$\sum_{t=0}^n t \cdot A_t \cdot e^{-it} = \sum_{t=0}^n t \cdot L_t \cdot e^{-it} \quad (7)$$

$$\sum_{t=0}^n t^2 \cdot A_t \cdot e^{-it} \geq \sum_{t=0}^n t^2 \cdot L_t \cdot e^{-it} . \quad (8)$$

ou $L(t_j)$, $j = 1, \dots, n$ - flux déterminés par les engagements du passif de l'entreprise;

$A(t_j)$, $j = 1, \dots, n$ - revenus produits par les actifs.

Soit $N_t = A_t - L_t$ et S - le surplus actualisé au taux i , $S(i) = \sum_{t=0}^n N_t \cdot e^{-it}$.

Parce que l'expression de S n'est pas calculable on va utiliser une approximation de second ordre (développement en série Taylor) :

$$S(i^*) = S(i) + \Delta i \cdot S'(i) + \frac{1}{2} (\Delta i)^2 S''(i) + \varepsilon, \quad (9)$$

ou $S'(i) = -\sum_{t=0}^n t \cdot e^{-it} \cdot N_t = 0$ résulte de la condition (7)

⁴ ⁴ Rolando, T., Quittard-Pinon, F., (2000), *La gestion du risque de taux d'intérêt*, Economica, Paris.

⁵ Les formules sont exprimées en temps continu et les premières formules étaient exprimées en temps discret.

$$S''(i) = \sum_{t=0}^n t^2 \cdot e^{-it} \cdot N_t \geq 0 \text{ résulte de la condition (8).}$$

Par conséquent, si (6), (7) et (8) sont vérifiées, on a d'après (9) :

$S(i^*) - S(i) \geq 0$ et le bilan est au moins immunisé. De (6) et (7) on tire :

$$\frac{\sum_{t=0}^n t \cdot A_t \cdot e^{-it}}{\sum_{t=0}^n A_t \cdot e^{-it}} = \frac{\sum_{t=0}^n t \cdot L_t \cdot e^{-it}}{\sum_{t=0}^n L_t \cdot e^{-it}} \text{ ou } D_A = D_L. \quad (10)$$

Autrement dit, dans le cas d'une structure plate des taux d'intérêt, l'égalité de la durée des actifs et des engagements est une condition suffisante d'immunisation. On peut enrichir l'analyse si on introduit la structure par terme des taux d'intérêt. La structure par terme des taux d'intérêt est à la base de toute méthode d'évaluation des actifs contingents liés aux taux d'intérêt. Elle permet d'apprécier le prix du temps ainsi que son caractère différencié en fonction de la maturité considérée. De manière précise, la structure par terme des taux d'intérêt désigne la série de taux au comptant (ou taux spot), applicables à des placements donnant droit à un revenu unique et certain et qui ne se différencient que par leur maturité. Son estimation est donc indispensable pour évaluer les actifs à revenu fixe et facilite la mise en œuvre d'un arbitrage de portefeuilles en vue de profiter d'une sur ou sous-évaluation des titres par le marché.

Le fait d'évaluer un produit avec une structure par terme des taux, qui est très proche de celle du marché, peut être un élément important de concurrence, parce que cela permet d'avoir des produits moins chers. Fisher et Weil ont développé dans les années '70 la formule suivante pour la durée :

$$D_{FW} = \frac{\sum_{t=1}^n C_t \cdot (1 + s_t)^{-t} \cdot t}{\sum_{t=1}^n C_t \cdot (1 + s_t)^{-t}}, \quad (11)$$

où s_t - le taux de change instantané (spot rate) pour la période $[t, t+1)$.

Contrairement à la durée de Macauley, la durée de Fisher et Weil présente l'avantage de tenir compte du prix du temps et de son caractère différencié en fonction des maturités considérées. Il suffit alors de détenir l'obligation sur un horizon de placement égal à sa durée pour l'immuniser contre toute variation de taux.

En théorie, l'utilisation de la formule de Fisher et Weil pour calculer la durée n'est pertinente que si la courbe de structure des taux subit des chocs additifs. Lorsque des chocs de toute autre nature (multiplicatifs, stochastiques...) sont anticipés par l'investisseur, il lui appartient de choisir la formule de la durée la plus appropriée. L'efficacité d'une stratégie immunisante devient donc tributaire de la capacité du gérant à pouvoir anticiper d'une manière plus ou moins fiable la

nature du choc pouvant affecter la courbe de structure des taux. Dans la pratique, cette condition est difficile à respecter et la plupart des investisseurs réfèrent, pour des raisons de commodités, recourir à des formulations simplifiées telle celle de Macaulay.

Toutes les observations montrent que la structure des taux d'intérêt n'est pas universellement plate, ce qui conduira à abandonner toute gestion basée sur le concept de durée. Mais des études empiriques ont mis en évidence une certaine robustesse des stratégies appliquées dans ces conditions. De cette manière, malgré sa simplicité, la durée reste un concept utile dans la gestion du risque de taux d'intérêt.

Les méthodes fondées sur la durée et la convexité sont des méthodes statiques qui supposent la définition explicite d'un horizon de gestion. Les procédures dynamiques proposent d'adapter le type de gestion des taux d'intérêt en fonction des événements économiques pertinents. Les sociétés d'assurance bénéficient des gains d'une gestion active sans augmenter les risques d'insolvabilité.

3.2. L'assurance dynamique du portefeuille

Le principe de l'assurance dynamique consiste, en théorie, à réallouer de façon continue la richesse entre les actions et l'actif sans risque pour obtenir le niveau de profit désiré. En pratique le portefeuille est restructuré périodiquement. Le principe est d'accroître le nombre d'actions dans le portefeuille quand les actions montent et de les vendre pour acheter l'actif sans risque quand elles baissent.

Si le taux sans risque est variable durant la période d'assurance, le choix de l'actif sans risque du portefeuille de réplique devient alors crucial. La qualité de l'assurance dépend directement du rendement de l'actif sans risque durant la période d'assurance.

Une société d'assurance désirent protéger son actif pourrait constituer un portefeuille d'obligations d'immunisation et un portefeuille d'actions et par une réallocation systématique entre les deux, répliquer une option d'achat. En fait, ce que souhaite protéger les sociétés d'assurance n'est pas tant le portefeuille d'actif que le surplus, la stratégie d'assurance doit donc prendre en compte l'évolution du passif. Pour protéger le surplus il suffit de remplacer l'actif sans risque par un actif de durée égale à celle du passif, obtenant ainsi une corrélation parfaite entre l'actif de couverture et le passif, l'ensemble constitué de l'actif sans risque qui vient d'être construit et du portefeuille d'actifs risqué. Kritzman⁶ montre que cette stratégie est beaucoup moins coûteuse que la stratégie d'assurance de l'ensemble de l'actif, elle doit être utilisée de préférence dans tous les cas de protection du surplus : fonds de retraite et sociétés d'assurance vie.

4. L'application de l'assurance dynamique du portefeuille

L'assurance dynamique consiste à gérer un portefeuille composé d'actifs risqués (les actions) et d'actifs sans risque (comme les bons du Trésor). Les

⁶ Kritzman, M.P., (2000), *Puzzles of Finance*, John Wiley & Sons, New York.

proportions investies dans chaque catégorie d'actif sont révisées sur la durée de la protection afin d'atteindre le profil de revenus souhaité⁷.

La création du put couvert synthétique constitue une technique d'application de l'assurance dynamique. Quand l'option de vente n'existe pas ou elle n'est pas adaptée pour couvrir un portefeuille spécifique pour une société d'assurance vie, on peut dupliquer (répliquer), en pratiquant une gestion dynamique, le comportement d'un portefeuille assuré.

Cette technique repose sur l'argument d'arbitrage de Black et Scholes qui consiste à créer un portefeuille sans risque en combinant de manière rationnelle des actions et des options : les variations de la position titres sont compensées par les variations de la position options. Pour être identique avec une option de vente, le portefeuille répliqué doit avoir le même rendement comme l'option et il doit se autofinancer (aucun somme ne doit pas être ajouté dans la période de duplication). L'importance de cette condition a été mise en évidence par Harrison et Kreps (1979). La relation d'arbitrage qui soutient les formules d'évaluation des options n'est plus valable si les agents peuvent prendre des nouveaux engagements pendant la stratégie de duplication.

Les proportions qu'il faut détenir en titres sont définies par le delta (Δ) de l'option représentant la sensibilité de l'option au prix du titre. La détention de Δ_p (delta du put) action peut être parfaitement immunisée par l'achat d'un *put* (de prix P). Le rendement de cette position au terme d'une échéance très courte doit être égal sur un marché équilibré au taux sans risque.

Soit A – le placement au taux sans risque correspondant à l'achat de bons du Trésor et S – la valeur du titre. Nous avons l'équation suivante:

$$A = P - \Delta_p \times S \quad (12)$$

$$P = A + \Delta_p \times S \quad (13)$$

Nous constatons que le put peut être dupliqué⁸ par un placement en bons de Trésor et une position courte (vendeuse) sur l'action support de l'option. La position qui assure la protection d'une action est un achat de put. L'ensemble des positions est noté $S+P$. En remplaçant P dans la dernière formule, nous obtenons:

$$S+P = S + (A + \Delta_p \times S) = (1 + \Delta_p) \times S + A = (1 + \Delta_p) \times S + (P - \Delta_p \times S) \quad (14)$$

Cette équation exprime le fait qu'une action couverte par un put peut être dupliquée par la détention de $(1 + \Delta_p)$ actions et par un placement au taux sans risque d'une valeur de $(P - \Delta_p \times S)$.

⁷ Jeannicot K., Ben Larbi S., (2004), Management des Risques Financiers et Marchés Organisés, Economica, Paris, p.144.

⁸ La duplication représente la construction d'un portefeuille qui a le flux de trésorerie identique avec ce généré par l'option.

Ce raisonnement fondé sur une action détenue peut être étendu à un portefeuille d'actions. Dans ce cas, le gérant d'un portefeuille dont la valeur est V peut construire un put couvert synthétique

$(V + P)$, en vendant une proportion $|\Delta_p|$ du portefeuille d'actions, tout en respectant les pondérations de chaque titre au sein du portefeuille (car il doit détenir $(1 + \Delta_p)$ actions). Il place ensuite la trésorerie qui en résulte au taux sans risque (en achetant bons de Trésor) majorée de la valeur P .

La duplication du put couvert ne peut être parfaite que lorsque les variations du portefeuille sont très faibles et sur un intervalle très court. Dès que le delta du put se modifie, il est nécessaire de recomposer le portefeuille: calculer la nouvelle valeur du put afin de ne détenir qu'une proportion de $(1 + \Delta_p)$ actions et $(P - \Delta_p + S)$ en bons de Trésor. Ainsi les ajustements à opérer entre le portefeuille et les bons du Trésor s'effectuent de manière dynamique. La reconstitution doit avoir lieu dès que le portefeuille se modifie.

A l'échéance de l'option ils peuvent exister deux situations:

- Si la valeur du portefeuille V est beaucoup plus élevée que la valeur assurée K (le prix d'exercice ou le capital minimal garanti), on parle d'une position globalement investie en actions afin de profiter de la hausse des cours;
- Si V devient très inférieur à K , l'investissement est fait en majorité en bons de Trésor de façon à obtenir à l'horizon de la protection la valeur assurée ($K - \text{capital garanti}$).

Les échanges nécessaires à l'assurance dynamique sont autofinancés, c'est-à-dire qu'une fois l'investissement initial réalisé, aucune liquidité n'est requise: le montant des titres vendus en cours de période d'assurance est toujours égal à la valeur des titres nécessaires à acheter.

La mise en oeuvre de la procédure de duplication impose au préalable l'estimation de plusieurs variables pour évaluer le put théorique:

- K , la valeur du portefeuille que le gérant souhaite se garantir à l'horizon de l'assurance;
- r , le taux sans risque;
- T , l'horizon de l'assurance;
- σ , la volatilité du portefeuille d'actions.

En général l'assurance du portefeuille avec les options est attractive sur un marché avec un fort caractère volatil, mais empêche l'obtention des gains substantielles quand le marché est sur une tendance ascendante⁹.

En ce qui concerne le marché roumain de capital, en 2006 et 2007 les investisseurs ont été confrontés à des brusques baisses et hausses, dans une courte période, indiquant une forte volatilité (ou une hausse du risque). Le risque a été double en 2005 par rapport à la moyenne des années 2001-2004. Cet état du marché roumain de capital justifie l'utilisation de l'assurance dynamique du portefeuille comme modalité de couverture contre les risques de taux d'intérêt.

⁹ Todea, AL., (2003), *Managementul investițiilor pe piața de capital*, Casa Cărții de Știință, Cluj Napoca.

3. Conclusions

Pour l'approche statique, une utilisation combinée des mesures de durée et de convexité doit permettre une gestion efficace même durant les périodes de fortes turbulences des taux. L'assurance dynamique allie une très grande simplicité avec une forte efficacité. Pour en démontrer l'optimalité il faut développer des applications pratiques.

La mise en place d'une couverture, est indiscutablement facilitée par l'utilisation des nouveaux instruments financiers qui non seulement réduisent les coûts de gestion et de transaction mais aussi rendent possible des stratégies qui ne le seraient pas sans eux.

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THE IMPACT OF THE SOLVENCY II PROCESS OF THE INSURANCE FIELD IN ROMANIA

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Abstract. Insurance companies and banks are of great importance to the economy, which is why their stability must be ensured. In order to prevent bankruptcies in the financial sector, these companies are subject to strict regulations, which set standards for risk management and the amount of reserve capital required. Such capital reserves act as safety buffers to protect the customers from extraordinary events. In the insurance industry, the reserve capital is referred to as the solvency margin.

The purpose of this paper is to present the evolution of prudential regulations for insurance sector and explain how the Solvency II framework (in line with the developments of IAS/IFRS) will affect risk management in the Romanian insurance industry, and whether these changes can result in opportunities for insurers. This is achieved by studying the new regulations and conducting a number of interviews with insurance company representatives as well as industry experts.

A final consideration of impacts and developments provides a few recommendations and suggestions for regulators and insurances.

JEL Classification: G11, G22, G23, G31

Keywords: fair value, adequation of capital, solvency margin, risk management, provisions for risk, Solvency II

1. Introduction

A particular characteristic of insurance is that the production cycle is inverted: insurers receive a premium up-front, but are only obliged to pay-out if the risk materializes at some future date. This is the main reason why States control insurance, because it exposes policyholders and beneficiaries of insurance contracts to loss in the event that an insurance company goes bankrupt. As a consequence, State intervention has tended to focus on introducing measures that guarantee the solvency of insurance undertakings.

This study is concerned with explaining how the Solvency II regulations will affect risk management in the life and non-life insurance industry, and whether

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these changes can result in opportunities for insurance companies. These are indeed contemporary events over which we have no control, referring to a “how” question. Thus, the method being used is *case study research*.

Since this study is not concerned with social critique, we will focus on the choice between a positivist and an interpretive perspective. The purpose of this study has emerged gradually through discussions with different stakeholders. The process has been iterative in the sense that new stakeholders have been contacted, our frame of reference revised and the purpose rephrased several times. Therefore, the aim when entering the field has been to test theories developed or discovered in the earlier stages of our thesis. Considering possible effects from Solvency II is not a new idea, although there seems to be lack of empirical evidence that supports it. Therefore, we think that a *positivist research approach* best corresponds to our needs.

One could argue that different stakeholders are likely to have different views on the complex subject we have chosen to investigate. As Lee (1991) writes, an interpretive research approach acknowledges that one phenomenon can be interpreted differently by two individuals, and that this fact needs to be considered in the research. We have seen, for example, proof of interpretive research in the way we have dealt with changes to the purpose of the study as well as conflicting opinion of interviewees. The main reason for doing so is that any current assessment of potential effects of Solvency II is deemed somewhat subjective. In five to ten years time, a purely positivist, and perhaps quantitative, study should be feasible, while it certainly is not today. In brief, this study is mainly guided by a positivist research approach, but it also has some elements of interpretive research.

2. The Previous Situation For The Insurance Supervision

The main elements of current insurance supervision in Europe are the Directives 73/239/CEE and 88/357/CEE, which correspond to the Non-Life Assurance Directive from 1973 and can be considered as the first generation of solvency guidelines. Furthermore, the second generation, the Directives 79/267/CEE and 90/619/CEE (European Commission, 2002) that are the Life Assurance Directives from 1979 came up. The third generation of directives is represented by the Non-Life Assurance Directive 92/49/CEE and the Life Assurance Directive 92/96/CEE. Those were established in 1992 and formed the foundation of the European domestic insurance market (European Commission, 2005). The essential improvements within these guidelines were the omitted preventive product control and the implementation of the principle of the member state of the head office, including mutual acceptance of harmonizing supervision rules as well as the creation of a sufficient solvency margin.

The first, second and third life and non-life directives commonly known as Solvency 0, specify which assets should be used for calculating the solvency margin. They also specify that the *required solvency* margin should be the greater of the *adjusted premium index* or the *adjusted claims index*. Sandström (2006) writes that the adjusted premium index is:

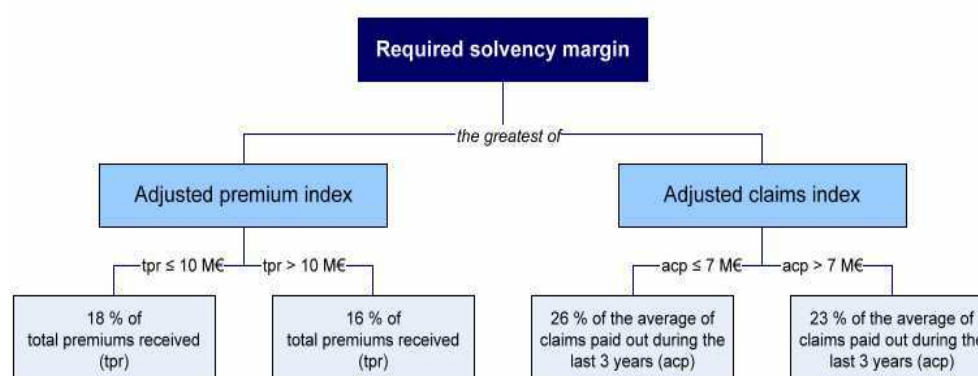
- 18% of total premiums received during the financial year up to 10 million euros, and
- 16% of total premiums received during the financial year in excess of 10 million euros,

and the adjusted claims index is:

- 26% of the average of claims paid out during the last 3 years up to 7 million euros, and
- 23% of the average of claims paid out during the last 3 years in excess of 7 million euros.

This reasoning is summarized in figure below:

Table 1. Calculated the required solvency margin under the first Solvency directives



(Source: Sandström, 2006)

In 1998 the Insurance Group Directive was adopted. Main elements of this directive were the calculation of the adjusted solvency of insurance groups. This should confirm the available equity as an actual state on the one hand and the determination of a target solvency as minimum of verifying equity on the other hand. In this way double gearing can be avoided. This directive was in most European countries established in 2001.

3. Solvency I

After the implementation of the European Single Market it became obvious that there has to be a rearrangement of the supervisory regulations. The first step was made in 1994 with formation of the Müller-Commission. This committee consists of representatives of several European supervisory authorities. Its task was a critical review of the previous situation within the insurance market and to compile realignments. In 1997, their first report including recommendations to enhance the European solvency supervision was submitted. According to this statement the supervision model worked quite well and only slight changes and extensions were necessary (European Union: EU-Directive 2002/13/EG, 2002). The recommendations of the Müller-Commission were passed through two EU-directives, in 2002. Their implementation began in 2004.

Consequences of the realignment were stricter requirements in order to ensure solvency. Now, according to the regulations solvency has to be guaranteed at every single point in time and not only at the end of the fiscal year. Resultant from this, insurance companies were forced to improve their information systems to provide reliable data on a daily basis (World Bank, 2005).

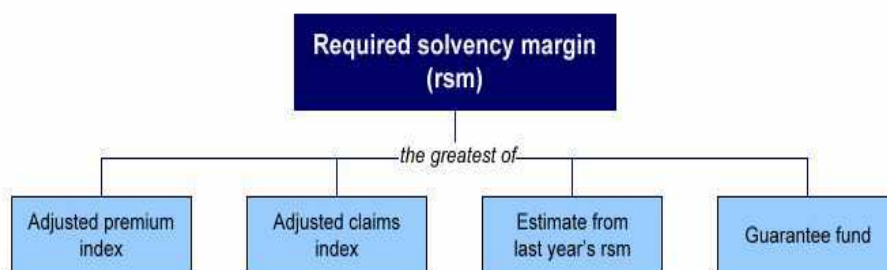
From now on, a solvability margin was required to cover unexpected losses and future risks. The available solvency consists of free and unmortgaged equity without intangible assets. This is the basic capital, compulsory and free reserves and the retained earnings or debit carryover after deduction of distributed dividends. Moreover the supervision was enabled to intervene earlier in the case of non-sufficient reserves or breach of solvency norms. That is for example: The supervisory authority could limit rights of disposal of assets or claim for a recapitalization plan. Furthermore, it has the right to get access to reinsurance contracts for particular solvency calculations and to reject them due to highly worsen quality or missing risk transfer.

The calculation of the capital requirement under Solvency I is relatively simple: a percentage of premiums and claims in non-life insurance and reinsurance and a percentage of technical provisions and of capital at risk in life insurance

The required solvency margin is specified as:

- the greater of the adjusted premium index and the adjusted claims index during the current or previous financial year,
- or the last year's required solvency margin multiplied by a ratio concerning outstanding claims.

Table 2. Calculating the required solvency margin under the Solvency I directives



(Source: Sandström, 2006)

To calculate the actual solvency within equity, several changes for Non-Life and Life-Insurance companies (Life and Non-Life insurance business have to be considered separately, since they face different maturities and types of insured risks), were established:

- as before, valuation reserves can be assigned to equity on application, but *now* there is also the possibility to assign them to guaranty funds.
- only on application 50% of the not deposited basic capital could be deducted from the actual solvency amount and therewith lower the amount insurances have to provide, as long as 25% are deposited. The maximum deduction equals 50% of the solvency margin. Now, this border is also valid for lower-ranked liabilities (Bernd Heistermann, 2004).

The rules under Solvency I have worked well and the relatively few failures which have occurred under Solvency I were more due to management failure than to a lack of capital or technical provisions. However, a study conducted by the Committee of European Pensions and Insurance Supervisors (CEIOPS) has shown that in most cases of actual failure, the current solvency margin rules did not provide a significantly early warning that intervention was required and of

forthcoming problems, presumably precluding supervisory authorities from intervening in a timely manner.

There are therefore serious doubts whether Solvency I can remain the regulatory basis for insurance supervision in the years to come. The system is clearly outdated. It is retrospective and not prospective. It does not require management of insurance companies and insurance supervisors to look at the individual risk position of each insurer. It does not take account of a number of important risks, such as the asset/liability management risk, credit risk or market risk. Furthermore, it fails to provide insurance companies with the necessary tools to cope with increased international competition, with the emergence of new risks and with the growing pressure of capital markets. From an internal market perspective, it does not allow a real comparison between the financial position of insurance companies from different Member States, as the system fails to harmonize the most important element of an insurer's balance sheet, the technical provisions.

Finally, the development of new techniques, particularly in actuarial science, allow for a more accurate analysis of risks. Since the foundations of the current EU solvency regime were laid in the 1970's, the landscape surrounding solvency, including the insurance sector itself, financial markets, the approach to prudential regulation, techniques for risk management, actuarial methods and accounting standards have changed dramatically. The current solvency regime has been left behind and one of the most important consequences is a dislocation between regulatory capital and insurance companies' own assessment of the capital they need given the nature of their business

4. Solvency II

In 1999, the European Commission started the project SOLVENCY II in order to renew the actual insurance supervision and to harmonize it with the banking system within the EU member states. This project should be realized in two big phases and should find its completion due to an EU-directive that is valid for all member states:

- the first phase - **construction of the general conditions** - includes an analysis of the existing situation, a discussion about possible basics, principles and concepts as well as the commitment of the main features of the future system. Phase I was started in May 2001 and was completed with the document of the EU Commission: "SOLVENCY II – Reflections on the general outline of a framework directive and mandates for further technical work", on 19th September 2003.
- the second phase – **design and implementation** - The European Commission used four workgroups of the Committee of European Insurance and Occupational Pensions Supervisors (form now on stated as CEIOPS) to develop the technical details and implementation rules. They started their work in summer 2004. These four groups work on one of the following subjects, respectively:
 - Life/Non-Life insurance (Pillar I),
 - Qualitative financial supervision (Pillar II),
 - Market transparency (Pillar III),
 - Sector overlapping questions;

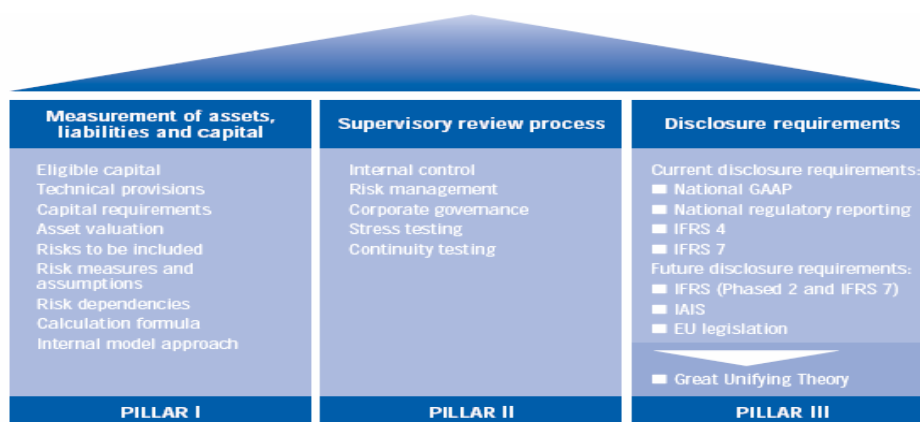
The new system should provide supervision authorities with appropriate qualitative and quantitative tools to assess and regulate the overall/total solvency of an insurance company. Furthermore, it should offer incentives to record and minimize risks. An efficient control belongs also to the target settings as the creation of equal/fair competition conditions.

All relevant types of risk should be regarded and a possibility to use internal risk management systems will be provided. Sufficient equity capital as protection of SOLVENCY I's preferential. Other aims are the protection of the insurance company, the avoidance of exorbitant complexity, the allowance of market developments, the definition of principles (without going too far into detail), and the prevention of overcapitalization.

The European Commission involved different international organizations and associations like the IAIS (International Association of Insurance Supervisors), the IAA (International Actuarial Association), the auditing company KPMG, and the national supervision authorities to develop SOLVENCY II in a proper and professional way. Due to this consortium, representatives of supervision authorities out of over 170 countries participate in this development process (Yoshihiro Kawai, 2005).

SOLVENCY II has got the same look as BASEL II – three pillars that should interact with each other without overlapping, to create a consistent framework.

Table 3. The three pillars of Solvency II



(Source: CEA, 2006, 8)

4.1. Pillar I

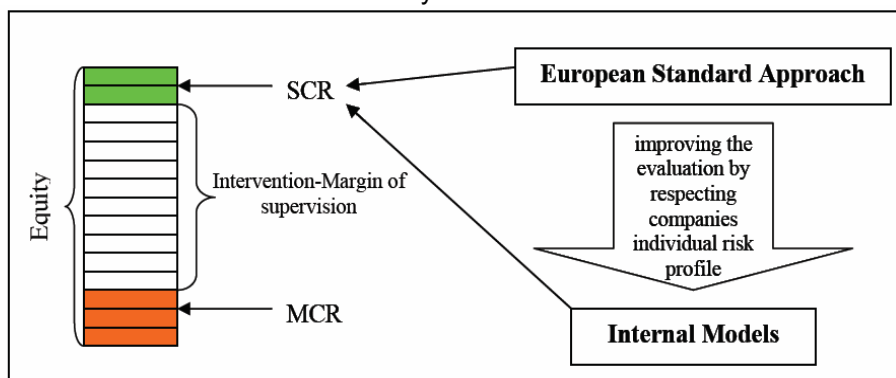
The first pillar of SOLVENCY II deals with the regulatory concerns concerning the financial resources. Those are supervisory specifications with respect to technical provisions, investments and solvency margins. Since SOLVENCY II wants to keep the probability of insurer defaulting below 0,5% within one year, certain capital restrictions/requirements are needed.

Particular important are the mentioned technical provisions. They have an extensive impact on the solvency requirements, since their calculation should be identical with the developments of the International Accounting Standards

(IAS/IFRS). A detailed consideration of this point is here not possible, since there is not sufficient data available at this point in time.

The capital requirements of Pillar I (MCR and SCR) will capture and sufficiently measure all risks on the balance sheet. Within Pillar I MCR and SCR are the central elements. CEIOPS developed a Standard Approach to determine these requirements. The calculations should be based on “fair values” (market values) for assets and liabilities. However, this approach is not finalized yet and need still improvements. That is why also internal models should be developed to meet the specific needs of the company (see also Figure below).

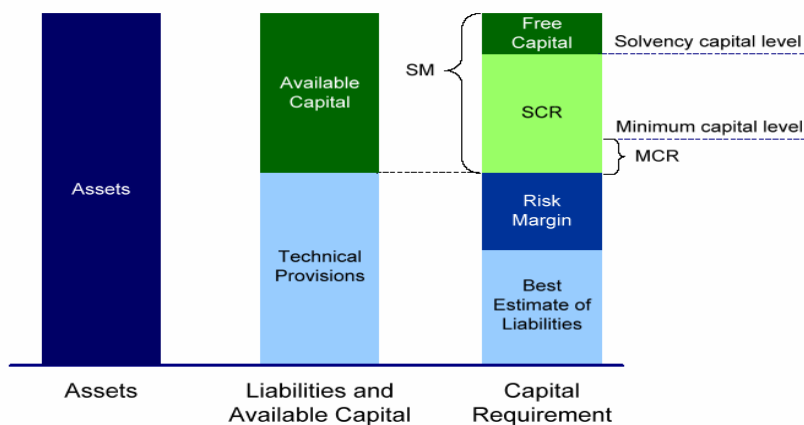
Table 4. MCR and SCR under Solvency II



(Source: Schubert, 2005)

The most important change according to SOVLENCY I is the market oriented evaluation of assets and liabilities. On the basis of this the equity requirements of Pillar I will be calculated (Eling *et. al*, 2007). It will be distinguished between Minimum Capital Requirements (MCR) and Solvency Capital Requirements (SCR). SCR could also be constituted as aimed economic capital.

Table 5. Relating the MCR and SCR to assets and liabilities



(Source: CEIOPS, 2006)

MCR defines that amount of capital on their shortfall the activities of an insurance company would have an unacceptably high risk for the insuree. If the capital of the company falls below the MCR ultimate supervisory actions shall be initiated. The MCR should be considered as a simple, robust and objective indicator (CEIOPS, 2005).

SCR should warrant a capitalization that gives an insurance company the opportunity to absorb huge unexpected losses to provide the insuree an appropriate security that payments will be made if necessary. The SCR should represent that amount of capital, which is needed to fulfill all obligations within a certain time horizon to a particular confidence level (CEIOPS, 2005). A catalogue of different possible actions is available to the supervisory authority in case of a shortfall of the optimum level. These actions could be used before a definite intervention becomes necessary.

The calculation of the capital requirements could be performed either on basis of a standard model or through an internal approach, which has been developed by the company itself and has been investigated and permitted by the supervision authority. In this way it is guaranteed that also small firms can develop a risk management within their possibilities. The standard approach should be a holistic method that contains all basic risk for both assets and liabilities.

4.1.1. Determination Of Solvency Capital Requirement (Scr)

The approach of CEIOPS covers both the Life and the Non-Life insurance business and takes their sector specific characteristics into account. The mixtures of these two classes have not been investigated so much, but a team of CEIOPS is working on this part. For that reason only the framework for the Life and the Non-Life insurance will be discussed here. The basic idea of both frameworks is the same but there are still slight differences between them. CEIOPS wants to provide one single framework that covers all main risk types. The ESA should enable companies to measure and calculate their SCR in a simple and correct way. One of the basic ideas of this approach is to use a simple standardized factor based approach to estimate and evaluate each risk component separately. For that purpose the ESA is constructed as a “k-factor” model. Especially for market risk and underwriting risk, the ESA gives companies the opportunity to use some alternative options and scenarios to better constitute their individual incidents and thus to calculate their SCR more correctly. The used scenarios should be consistent with the design of the standard factors (CEIOPS, 2006). Furthermore, the ESA is going to calculate the capital requirements for each the main risk types: market risk, underwriting risk (Life, Non-Life, and Health), credit risk, operational risk, and all their respective sub-categories of risks.

For the **Market Risk** these sub-risks are namely according their importance:

- Equity risk,
- Interest Rate risk,
- Real Estate risk,
- Currency risk, and
- Credit Spread risk.

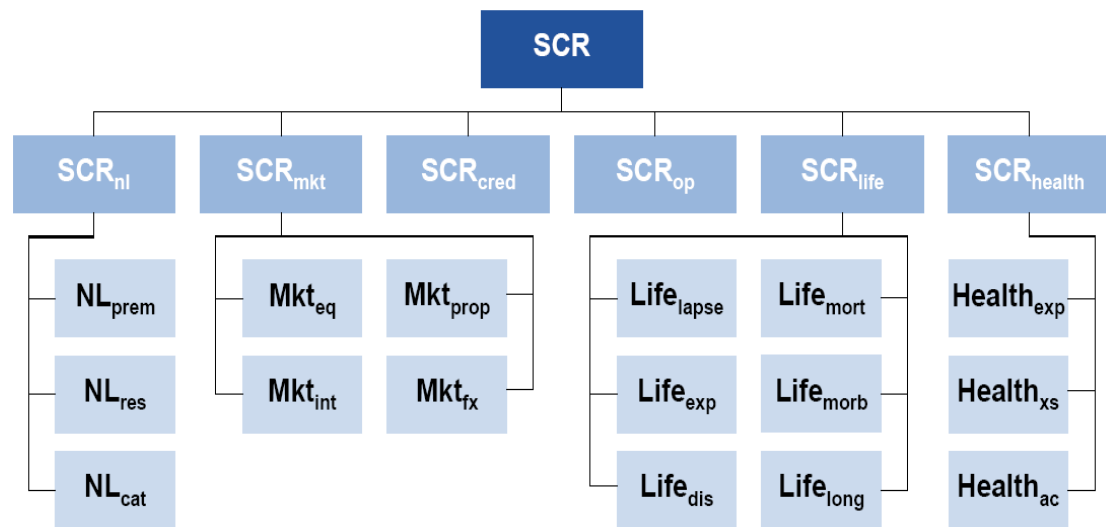
For the **Underwriting Risk** these sub-risks are namely according their importance:

- For the **Life** insurance industry:

- Biometric risks (Mortality risk, Longevity risk, Morbidity risk, and Disability risk),
- Lapse risk, and
- Expense risk
- for the **Non-Life** insurance industry:
 - Reserve risk,
 - Premium risk,
 - Catastrophe risk. (CEIOPS (2006).

Out of all these sub-SCRs the total SCR can be derived. This process could be illustrated as shown in figure below.

Table 6. Overview about the risks included in ESA



(Source: CEIOPS, 2006:16)

The basic formula to calculate SCR is:

$$SCR = BSCR - RPS - NL_PL$$

Where:

- BSCR = the “Basic Solvency Capital Requirement”,
- RPS = the “Reduction of Profit Sharing” and
- NL_PL states the “expected profit or loss arising from next years business for Non-Life insurance”.

One fundamental underlying economic principle has to be mentioned before presenting how the SCR is calculated within ESA. This principle concerns the used input-data for the calculations.

Since the Capital Requirements (both MCR and SCR) should be based upon the whole balance sheet, assets and liabilities have to be inserted with their Economic Value (market value). For liabilities the concept of prudence should be applied.

Since the actual accounting framework does not give economic values of liabilities, a Cost-of-Capital approach (CoC) and based on that a Market Value Margin (MVM) has been developed by CEA and was then implemented by CEIOPS in this framework to calculate the SCR of liabilities. This approach could be used by firms, which have no other possibility (like internal models) to obtain economic values for their liabilities (CEA, 2006). The CoC-approach should also lighten the work for the participants of the Quantitative Impact Studies (CEIOPS, 2006).

An alternative for non-hedgeable risks and liabilities – the 75th percentile-approach – gives the opportunity to calculate the appropriate risk margins by applying actuarial stochastic simulation methods to determine the difference between expected value and the needed value to obtain an overall level of confidence – the risk margin.

Another basic principle of ESA should be that it takes risk mitigation through reinsurance and other mitigation tools (like different hedging strategies, which limit the company's losses in unfavorable market developments) into consideration. However, this part might be very difficult to achieve, since the practical simplicity of the ESA would suffer, especially when it comes to non-proportionate reinsurance. But to face also this problem, CEIOPS refers to the use of scenario approaches (CEIOPS, 2006).

Elements of the Standard SCR Formula: $SCR=BSCR-RPS-NL_PS$

To obtain the total SCR the risk absorbing ability of a company's future profit sharing (**RPS**) has to be considered by the ESA. This is relevant for the Life-Insurance industry. Non-Life Insurance companies more often use another risk absorbing area: the expected value of newly started businesses (**NL_PL**). For that purpose the ESA has to differentiate among different categories of liabilities. In general such an absorbing ability will reduce the SCR. If a firm does not know, if it could absorb some risk they are allowed to use a low standardized deduction (CEIOPS, 2006). Moreover, ESA aims to take fund structures of companies into account, while determining the capital requirements. This is necessary, since the fund structure e.g. allows or does not allow profit sharing and/or risk sharing among policyholders. These circumstances affect the risk absorbing ability of the fund and are therefore substantial to consider (CEIOPS, 2006).

The central element of the formula is the "Basic Solvency Capital Requirement" (**BSCR**) that is before any adjustments according to RPS or NL_PL. The BSCR is the aggregated result of the SCR for each main risk class market risk, credit risk, underwriting risk and health risk; and its respective sub-risks. The underlying ideas for computing each main risk's SCR are presented in the following paragraphs.

SCR for Market Risk

For calculating the SCR of the market risk, ESA suggests to group assets into classes with homogenous risk features, like volatility or credit quality of underlying assets. This particular part of the total SCR should also respect the situation where more than one event could have a combined impact. Therefore the so called *mass lapse risk* has to be considered. The stated approach includes a lot of formulae and suggestions for tests (mostly correlations matrices tests) for each of the sub-market-risks (CEIOPS, 2006).

SCR for Credit Risk

For the credit risk part, especially the credit quality of the counterparties has to be taken into observation and into the computation of the Solvency Capital Requirements. The credit risk for an insurer becomes obvious and critically necessary to observe when it comes to a probable default of one of its reinsurers', since its own profitability and paying ability would suffer drastically. Also the mortgaged credit risk should be considered (CEIOPS, 2006).

SCR for Underwriting Risk (Life, Non-Life, and Health)

Within the detection of the SCR of the underwriting risk part, the CEIOPS submitted different volume measures for the respective sub-risk-types. To deal with the risk mitigation the ESA sees only reinsurance as the working tool (CEIOPS, 2006). This is true, since reinsurance offers a high flexibility and adaptability, due to its nearly endless variety of contracts, especially for the Non-Life business. However, as stated before most of the non-proportionate contracts of reinsurance are not yet covered by the ESA, at this point in time. The formulae and test proposals for this part made in the ESA are only slightly different for both the Life and Non-Life insurance industry.

The calculation of the SCR for the Health sector is related to that of the Life sector. This is due to the fact that some data is not differentiable. A risk reducing matter for this particular risk lies within the premium adjustment and calculations basics. Are these parts flexible and possible to monitor quickly they could have mitigating effects (CEIOPS, 2006).

SCR for Operational Risk

The final risk that affects the constitution of the overall SCR is the operational risk. According to the ESA the calculation should be performed on the company's level for Life insurance companies by using volume based measures on technical provisions and premiums. Non-Life companies should use a Non-Life level, which is represented by reserve and premiums, to calculate their SCR in this part (CEIOPS, 2006).

Aggregation to BSCR

After determining all these sub-SCRs the different results are aggregated to the total BSCR. This should be done in a way that captures diversification effects as well as concentration effects. To reach this goal this approach counsels the use of correlation matrices, to create more transparency across and within the different risk types (CEIOPS, 2006).

4.1.2. The Minimum Capital Requirement (MCR)

The MCR serves as the ultimate capital barrier, which should never be undershoot. The gap between SCR and MCR provides space for intervention by the supervision authority to restructure or sale a part of the insurance in order to recover or simply to protect the insurees. CEIOPS wants to have the MCR as a percentage of the SCR. If this post-transitioned MCR will be consistently determined to SCR, the same data and methods can be used. Therefore occurs no further effort for the companies (KPMG, 2007).

Another opportunity presented in the approach is the transitional MCR. This corresponds to that one of SOLVENCY I, with some adjustments according to SOLVENCY II's methodology. However, this entry is much more complex than the transitioned MCR and is not in favor of CEIOPS (CEIOPS, 2006).

4.2. Pillar II

The second pillar is constituted on the mentioned Sharma report for further qualitative elements of supervision. Among this belong the principles of internal control, proper risk management, and the formulation of combined principles and instruments of supervisory control (Eling *et. al*, 2007).

The commission intends to develop a supervisory controlling procedure that is based on the actual directives and the fundamentals of BASEL II. For insurance companies this would lead to a methodically administration, an appropriate internal control, and an obligation of disclosure to supervision authorities. On side of the authorities these rules bring along minimum competences to inquire, rights to intervene and specific operation barriers (European Commission, 2002).

According to the principles of BASEL insurance companies have to have a measure to assess their equity configuration in relation to their specific risk profile, as well as a strategy to maintain their equity. The supervisory authorities have to evaluate the quality of the internal assessment tools and the strategies to maintain equity, as well as the ability of the insurer to keep the predetermined minimum coefficients (CEIOPS, 2006). Furthermore, they have to be able to claim higher equity configurations for a company or a national market, if necessary, and they have to go after a precocious intervention to avoid non-sufficient equity configurations.

Additionally to the actual regulation for banks, also definitions about the amount of accruals and investment management have to be included (European Commission, 2002).

Also clear regulations about risk evaluation methods and intervention rights with regard to target capital configuration are relevant. Also the harmonization of European statutory provisions plays a role. For that purpose a certain degree of analogy in interpretation and procedures of supervision authorities is needed. This becomes especially obvious while considering international insurance companies with subsidiaries that are controlled by a supervision authority (CEIOPS, 2006).

4.3. Pillar III

The third pillar of SOLVENCY II will increase the market transparency and market discipline, due to an increase within the disclosure requirements (Eling *et. al*, 2007). The aim is to provide all market participants an insight into the solvency situation of a firm. This contributes to a corporate management that is effective and aware of risks.

The effort of the European Commission is thereby strongly orientated on the guidelines of BASEL II. This is done with respect to the fact that companies within the insurance sector do not depend on each other as much as in the banking sector.

The publication of supervisory information occurs next to the requirements of disclosure of financial markets, rating agencies and external accountants. The

coordination of these information requisites is important, especially with regards to the continuous developments of the International Financial Reporting Standards (IFRS) (ACAM, 2006). For that purpose a consultation of the IASB is needed, to reduce the administrative burden for firms (Hitesh Patel, 2006).

A fair balance between the public interest of information on the one hand, and the interest of competition of the insurer on the other hand, will be decisive for the future disclosure rules. However, unfavorable information of an insurer could aggravate an already bad situation of a company.

Due to fact that the obligations of the third pillar are pretty close to the procedures and measures of Pillar I and II, their detailed definition will be done during the work on SOVLENCY II.

5. Conclusions

The insurance market faces radical change due to Solvency II. Indeed, the French Society of Financial Analysts (SFAF) has called the new framework a “Revolution in value measurement and strategy” for the insurance sector. To fulfill the solvency requirements, insurance companies must review both the business processes and the profitability of their business lines. Certainly, Solvency II is revolutionary in that it provides:

- A better and more detailed measurement of risks
- A global focus on enterprise risk management (not only technical risks but also financial, operational and other risks)
- The evaluation of company assets at market value according to IAS/IFRS accounting principles

The impact of the Solvency II regime in Europe will be significant. It will not just change the regulatory capital requirements from the current, simplistic, Solvency I measures, but will fundamentally change the way that firms are required to look at their governance, risk and capital management processes. It will:

- Change the regulatory capital requirement by introducing a higher requirement based on a 1 in 200 (99.5 percent) confidence level over a one-year time horizon
- Change how firms calculate and manage their capital by requiring risk-based capital requirements and an articulated risk and capital management strategy
- Change how firms allocate capital within groups by setting out minimum capital requirements at both a group and solo level (currently subject to consultation), this will mean the European entity will be required to hold sufficient capital (what this means exactly is still under consultation)
- Increase the ability of analysts, policyholders and regulators to compare firms due to greater risk-based disclosures (currently subject to consultation)
- Increase the role of regulators by introducing a regulatory regime that focuses on risk and capital management while giving the supervisors greater powers of intervention, in particular in setting supervisory capital requirements
- Increase consistency between the supervision in different territories through application of a common framework, with peer review between

supervisors to ensure consistent application. This should result in less ability for firms to undertake regulatory arbitrage, although many of the aspects of the current consultations suggest this harmonisation will take time to achieve.

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ROMANIAN PAYMENT SYSTEM PERSPECTIVES IN THE CONTEXT OF THE INTEGRATION IN EU

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Abstract. At the European Union level there are three major ongoing projects in respect of the payment system: Payment Service Directive (PSD), TARGET 2 and SEPA. The three projects have important implications for the market participants, for the operators, for the National Bank of Romania involved in the payment system, and for the future architecture of the Romanian payment system.

The implementation of the European projects in Romania need a structured and well coordinated approach, with a solid institutional background.

JEL Classification: G2, G29

Keywords: Impact, payment system, payment service directive, SEPA, TARGET 2, National Payment Council, National Plan.

1. Introduction

At the European Union level there are three major ongoing projects in respect of the payment system: Payment Service Directive (PSD), TARGET 2 and SEPA. These projects are to be implemented starting November 2007 and January 2008 and will cover not only the euro countries, but also the other Member States.

Romania faces this great challenge of implementing the three European projects that will impact the regulator, the participants and the operator of the payment system. Some of the changes will influence also Romanian consumers, companies, other payment institutions and authorities.

PSD will impact Romanian institutions that are providing low value payment services to individuals and SMEs. TARGET 2 and its TARGET 2

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Securities component will impact all the participants to the national high value payment system (ReGIS) and SEPA will have a powerful influence on the national low value payment system (SENT)

2. Main PSD provisions

PSD objective is to ensure a modern and legal legal framework for payments in the European Community, in euro or other official currency of the Member States, up to EUR 50,000, where both service providers and users are located in the EC or only service providers.

PSD covers a large category of payment service providers – the payment institutions – comprising the credit institutions, the institutions issuing electronic money, the post offices, the Eurosystem and the local and central public authorities. According to PSD, all payment institutions have to be authorized by the central bank based on a comprehensive documentation on organization, management, technical capabilities, etc. PSD provides also minimum requirements for the payment institutions' equity and rules for externalization of part of the payment services.

Regarding the transparency in the payment activities, PSD establishes the minimum requirements for the information to be provided before and after the execution of a payment service and imposes the rule for charging the commissions: the payer and the beneficiary have to bear the commissions of their payment service providers (meaning that the payer or the beneficiary cannot be charged with both commissions) and the amount received by the beneficiary has to be the same with the amount paid by the payer (no commission deducted from this amount). There were many controversies on the settlement period provided by PSD – one banking day. The discussions on the difficulties to observe this provision led to a middle way solution: until 2012, the payment service provider and the users can agree on a settlement period no higher than 3 banking days.

At the same time, PSD establishes the rule for the value date: the beneficiary's account has to be credited in the same day the payment service provider's account has been credited. European Parliament issued, in April 2007, a resolution on the adoption of PSD with some changes; the directive hasn't yet been published, but its issuance is imminent.

How will PSD impact the Romanian payment system?

As PSD refers to payments both in euro and in the national currency, up to EUR 50.000, runed by consumers and SMEs, it will affect both the low value payment system and part of the payments in the high value payment system (processing payments above RON 50.000).

National Bank of Romania will have to transpose PSD in the national legislation in a manner that would ensure the equal position for the Romanian payment institutions with the European ones, by not imposing provisions different from the European regulation. In order to bring transparency and a good understanding of PSD provisions, National Bank of Romania should prepare a table comparing the European directive provision with the Romanian law provisions and should make it public.

National Bank of Romania will have to authorize the payment institutions (and the nategory encmpases not only credit institutions, but also Romanian Post and other payment service providers) and to control and supervise them.

It is also the NBR responsibility to identify or to establish a competent body to solve the disputes related to the payments covered by PSD. This body should be established by NBR as there is no other alternative dispute resolution scheme to institution to solve complaints coming from consumers and SMEs for services provided by all payment institutions. The projected Banking Mediator, whose establishment could be by the end of this year, deals only with consumers' complaints and could be extended in order to cover SMEs but only in respect of the payment services provided by credit institutions.

All Romanian payment institutions will have to apply for an authorization to provide payment services under PSD. For the credit institutions, the procedure is not a novelty as they were authorized before in order to participate in the Romanian payment system. For other payment institutions this licensing process and the equity requirements could cause some difficulties.

All Romanian payment institutions will have to comply with the requirements on information provided to clients, maximum settlement period and commissioning, or payments in RON and euro, up to EUR 50.000, to individuals and SMEs.

It is foreseeable that for the credit institutions the impact of these requirements is not considerable as for the payments in RON the commissioning, the information and settlement rules are already in practice. For the payments in euro, similar requirements were in place for cross-border payment under EUR 12.500. Therefore, the rules already in place will have to be extended to SMEs payments and to national payments in euro. This requires adjustments of their IT systems and internal procedures with effects on the costs side of their budgets.

At the same time, banks will have to give up the practice of delaying crediting the clients' accounts that brought them additional income.

The commissioning rule will bring two-ways impacts: a reduction in the costs with collecting commissions owed by payments beneficiaries for outgoing payments and an increase of the expenses with collecting the commissions from beneficiaries in incoming payments, as they cannot deduct commission from the received amount.

It is predictable also that the other payment institutions will be more impacted by PSD, as there were almost no rules in place for the services provided by them. The one day maximum settlement period which is not provided as a special service bearing higher commission will have to become now the rule.

For concluding, it seems that the major impact will be brought to the credit institutions by including SMEs payments under the new rules. It is worthy mentioning that for Romania is a totally new thing to ensure the same level of protection to SMEs as for the individuals. As for the other payment institutions, providing payment services only to individuals, they will be mostly impacted by the authorization and equity rules.

What is TARGET 2?

In TARGET 2 the current decentralized structure of TARGET will be replaced with a Single Shared Platform - SSP. In other words, while the existing system is composed of the national large value payment systems and the Eurosystem settlement system, with TARGET 2 the national systems will be replaced by the European one, in which the participants will have access directly, not through their national payment systems.

The National Central Banks will maintain responsibility for the participants and the participants' accounts, but they will not have to manage the national RTGS platforms. This new approach will bring an uniform commissioning structure and the charges will be lower than the current one as a result of a scale economy. Under TARGET 2, credit institutions will have multiple choices for participating at this payment system: direct participation, indirect participation, addressable BIC and multi-addressee access. Only the credit institutions registered and supervised within the European Economic Area could participate to this European large value payment system and the conditions for the direct participations are similar to the rules currently established for TARGET..

The direct participants will have a settlement account in the SSP and will be able to receive from and to send to the system the payment instructions and to settle their payments directly through their accounts with the national banks. The direct participants will be also responsible for the payments of the indirect participants using their services. The indirect participation means that payments are sent and received through the direct participants. For the addressable BIC there are no participant conditionalities established, each direct participant will have to deal with this issue; at the same time, addressable BIC is not covered by provisions of the Settlement Finality Directive (guaranteeing the finality of the payments).

In TARGET 2, direct participants could authorize their subsidiaries and the credit institutions in their group, from the Economic European Area, to direct their payments through the participant main account, without any connection to the system, as multi-addressees.

As a consequence of the multiple choices for participating to TARGET2, a credit institution will be able to direct its payment through a single access point and the other subsidiaries or branches to be indirect participants or addressees. This means that national payments could be performed through credit institutions located in other country. Another effect of this centralization will be the liquidity pooling facility that will allow a better management of the short term liquities within a banking group through consolidated information and through payments acceptance for settlement based on the aggregate available amounts.

All the central banks of the Eurosystem will participate to TARGET 2, and some of the central banks from the new member states will participate only after adopting euro. TARGET participants will migrate to TARGET 2 in 2 groups starting with November 19, 2007 until May 2008.

TARGET 2 Securities is a project not as advanced as TARGET 2 that envisages offering a single settlement platform for all transactions with financial instruments in euro. TARGET 2 Securities will not cover the depositing services, but will use data provided by the national service providers.

What are TARGET 2 consequences on the Romanian Payment system?

At present, National Bank of Romania is the owner, the administrator and the operator of the large value payment system in Romania – ReGIS. As a part of the Eurosystem, NBR will be a co-owner of TARGET 2 and will participate to it. At the same time, NBR will be a co-issuer of the system rules and will remain responsible for the accounts and for the relationship with the Romanian participants to TARGET 2.

NBR could adhere to TARGET 2 before adopting euro and its decision has a great importance for the decisions of the current participants to ReGIS and for the decisions within the European banking groups including Romanian banks.

It is predictable that NBR will choose to enter into TARGET 2 only after euro adoption by Romania; in the opposite case, NBR would have to open current accounts in euro for the Romanian participants, allowing thus the settlement. TransFonD ensures the technical operation of ReGIS and until euro adoption will continue to cover this area.

All current participants to ReGIS will be able to become participants in TARGET 2: credit institutions registered and authorized in Romania, the State Treasury, the clearing and settlement houses for cards and financial instruments. Although the access will be opened to all of them, the existing options for participating to TARGET 2 and the possibility for a single access point will have effects on the number of Romanian direct participants.

As a direct participant, a Romanian institution will have a settlement account with the SSP, access to real time information and control facilities. It will exchange directly with TARGET 2 payment instructions and will settle directly from its account with NBR.

Indirect participants will receive and send payments through the direct participants and will settle their payment obligations on the account opened with the direct participants.

Multiple scenarios can be built on the participation issue of the Romanian credit institutions. All of them could be direct participants, as they comply with TARGET 2 requirements. ReGIS uses now SWIFT standards and facilities and participants have ensured connectivity to SWIFT, with back up and disaster recovery systems, therefore problems in complying with TARGET 2 operating standards cannot be identified.

Participating directly to TARGET 2 would bring some access costs, but not significant as reported to the volume and value of the processed payments. Anyway, these costs have as a counter-balance the lower charges for given by the effect of scale economy. Direct participation depends largely on the NBR decision in respect of TARGET 2.

In case all the European banking groups will decide that the mother-banks will become the single access points to TARGET 2, their Romanian subsidiaries will be indirect participants. This kind of decision will have major implications for almost 75% of the banks in Romania: on one hand, there will be a reorganization and a redimensioning of the activities, and on the other hand, a redistribution of the costs and income within the banking groups.

Because of a single settlement account at the banking group level, all its management activities, including the management of the waiting lines, payment prioritization and the operations with the central bank for covering the liquidity deficit will be undertaken at the mother-bank level. Thus, the back offices of the treasury departments in the Romanian banks could be restrained, while at the mother-bank level will be expanded. The centralization of the payments processing and of the liquidity management will need very performant and automated systems at the Romanian banks level, capable to transpose treasury transactions into payment instructions in real time. This involves the compatibility of the IT systems at the banking group level and their functioning as an integrated system. As for the clients high value payment orders, these will have to be sent from the territorial

units of the Romanian banks directly to the processing center. Some of the European banking groups could decide that their Romanian subsidiaries could be the direct participants to TARGET 2 and act as a single access for the group. A decision like this would be based on considerations regarding the additional staff costs, the existing and estimated structure in volume and value terms at the group level, the estimated IT costs, and the possibility of having indirect participants outside the group and the final net effect and its fiscal treatment.

As for TARGET 2 Securities, SaFIR platform should be compatible with this one, allowing the daily data transfer.

In conclusion, ReGIS will coexist with TARGET 2 until euro adoption. Credit institutions participating to ReGIS will be able to adhere to TARGET 2 for high value payments in euro and it is predictable that these will be indirect participants, following intragroup decisions and NBR's strategy for not participating to TARGET 2 before euro adoption. Their participation to TARGET 2 will be intermediated by their mother-banks or by the correspondent banks in euro area.

With euro adoption and as TARGET 2 will cover both domestic and cross-border payments in euro, ReGIS will be closed or, better said, encompassed by the European large value payment system. Some of the Romanian credit institutions could become direct participants to TARGET 2, if such decision is economically reasonable. TARGET 2 will then ensure also the settlement of the multilateral net positions resulted from the clearing of the low value payments. The commission applicable to the domestic high value payments will be the same as the ones charged at the European level.

SaFIR services will complement those provided by TARGET 2 Securities and the effects of the economy of scale resulting from the single settlement platform will be more visible after Romania adopts euro.

SEPA – the greatest European current challenge

Single Euro Payments Area – SEPA is the most important European project after euro introduction. It is projected as an area where all consumers and companies will be able to receive and send payments in euro irrespective of their location, under the same conditions, with the same rights and responsibilities. Under SEPA project a set of standardized payment instruments (credit transfer, direct debit and card) will be created for payments within euro area, with the same conditions applicable to national and cross-border transfers.

SEPA was initiated by the European Commission and the European Central Bank developed regulation requirements and set up an implementation plan. The banking industry established in 2002 the European Payments Council (EPC) in order to coordinate and to regulate the payment instruments used within SEPA. SEPA management will be ensured by an EPC entity, AISBL, and refers to the scheme development management and to its administration and compliance with the system rules.

For becoming a SEPA participant, the payment institutions and the clearing and settlement mechanism have to observe the system rules and PSD requirements. Clearing and settlement institutions as well as other service providers (the so-called infrastructure) will compete at the national and European levels to offer their services and will have to bring more clarity and transparency to their commissioning. SEPA will develop payment schemes for credit transfers, direct debits and for cards.

The credit transfer scheme will introduce standardized payment orders whose processing will be facilitated by using the IBAN and BIC codes and by implementing the PSD commissioning rules. The scheme allows single and multiple payments (one payer and multiple beneficiaries). The scheme will ensure the efficient processing of the credit transfers based on Straight Through Processing (STP) and by giving the possibility of choosing the less expensive and convenient circuit of transactions. Banks will be able to offer to their clients additional optional services such as e-invoicing and e-reconciliation.

The standard SEPA Credit Transfer is planned to be made available to customers, in parallel with the national instruments, by January 2008. The expectations are that by end-2010 SEPA credit transfer is used by a critical mass of administrations, corporations and individuals.

The direct debit scheme is an interbanking payment scheme defining a set of rules and procedures for euro direct debit operations in SEPA. Direct debits are largely used in European countries by consumers for paying utilities (phone, electricity, tax and other bills) and for loans reimbursement.

EPC believes that it is preferable to define and implement a completely new direct debit scheme, with a new set of standards and regulations at the EC level, than harmonizing the existing national schemes. The new scheme will co-exist with the national ones for a transition period.

The features of the direct debit scheme are similar to the credit transfer scheme in respect of accessibility at SEPA level, of the short settlement period (five working days for the first payment and two working days for the periodical payments) and of the automated processing.

Card payments within SEPA will be made based on EPC set of rules for issuing banks, accepting banks, card schemes and processors. The card owners will have the possibility of using a single card and the card processors will be able to offer their services at SEPA level, on a more competitive and efficient market.

What will SEPA bring to the Romanian market?

Romanian consumers will need a single bank account for all their payments and direct debits throughout SEPA. They could pay, for example, the rent for their children studying abroad or the services provided by companies in Europe (mobile phone companies, insurance companies, etc.). The individuals leaving, working or studying abroad will not need anymore an account in the residence country and one in the home country. Romanian credit institutions started to lend to Romanian citizens working abroad, therefore the direct debit scheme would address the concerns related to the loans reimbursement.

In Romania, there is the practice and tradition of having accounts opened with several banks, due to bankruptcy histories and not only. As people will pay more and more attention on the costs with maintaining and operating these accounts, they will choose naturally for one and the best offer.

As for the direct debit, Romanian consumers are not accustomed with it and they see no advantage in having the paying moment pre-decided if this facility hasn't attached a credit facility at low costs.

If in other member states clients will have to face some changes brought by the SEPA payment instruments, in Romania they are used with providing detailed information on the ordered payments such as IBAN code – its use was implemented in 2004 for domestic payments also.

The costs of the payment services remains the most visible and rapid benefit for Romanian consumers. The spread utilization of cards will have a positive impact on merchants. Because of the open competition between Romanian and other European banks, they will benefit of lower commissions for payments by cards. The increased use of non-cash payment instruments will also decrease the costs with the cash management.

For the Romanian companies SEPA will mean a simplification in the payments management: they will be able to use a single account for all their payments and the received or sent payment instructions will be standardized. The positive effect will be higher for multinational companies acting in the euro area, as they could have a centralized treasury management.

TransFonD will have to facilitate the migration of the national schemes to the SEPA schemes. The company will have to adjust its activities so as to separate the payment schemes from the infrastructure and to be compatible with the European clearing house PE-ACH. TransFonD will have to face the open competition with all European infrastructure providers.

The Romanian credit institutions will be able to expand their activities and to enter into competition at the euro area level as they will be free to offer their services at this pan-European level. Their readiness to face this competition is questionable; it is predictable that they will need improvements in the quality and costs of their service in order to become comparable with the European competitors. A comforting thing for them is that for a long while they could rely on the Romanian clients who will prefer Romanian banks for tradition, language and physical closeness reasons.

An important issue is that SEPA payment schemes will bring many strategic opportunities for Romanian credit institutions to innovate, to develop new products, to replace the obsolete systems and to improve their operational efficiency.

The Government and the public authorities will have to support the enactment of the legal background for SEPA implementation in Romania. At the same time, they should be the first to use SEPA instruments for paying the public utilities and the fiscal duties. These are supposing the preparation of some implementation plans based on the lack of uniformity of the structures and of the processes in the local units of the public administration, on the potential impact on the existing regulations and on the necessary investment.

Before adopting euro, SENT will co-exist with SEPA payment schemes. The credit institutions participating to SENT will be able to adhere to SEPA payment schemes for payments in euro to euro area and their decisions will be influenced by their mother-banks strategies. At the same time, the simultaneous implementation of PSD will impose also the application of SEPA standards for payments in RON. Although SEPA schemes do not refer to debit payment instruments such as cheques, promissory notes and drafts, the standards for information, settlement period and the automated processing will be applicable for them also.

After euro adoption, SENT activity will be restrained to clearing and processing the debit instruments. It is predictable that the role of these instruments will diminish in time and maybe they will disappear. TransFonD will continue to provide services for the debit instruments and will compete with other European clearing institutions for the other payment instruments.

3. Conclusions

The architecture of the Romanian payment system will change importantly: ReGIS will be encompassed by TARGET 2 and SENT will remain only with the settlement of the debit instruments after SEPA implementation.

Romanian credit institutions will enter into an open competition with other European banks under the Single European Payment and should take preparatory measures although for a period of time they still could rely on the traditional Romanian customers.

As it can be observed, the three simultaneous European projects – PSD, TARGET 2 and SEPA payment schemes – have several interferences and interconditionalities and should be implemented in Romania in a coherent, sustained and coordinated manner in order to optimize the implementation costs and the positive effects.

For a successful implementation, the three projects should rely on a solid and stable organizational framework, in which all the market players and stakeholders to understand their responsibilities and to cooperate and interact. Until now, NBR didn't make known its intention related to TARGET 2 to the Romanian Banking Association. As for SEPA, banks, RBA and NBR appointed their representatives for interacting with EPC. A working group gathering banks, NBR and TransFonD representatives, had a first meeting in August this year and decided how to share the translation responsibilities for the documents issued by EPC and outlined the need for a national implementation plan.

We consider that a higher attention should be paid to these three projects and that the projects' coordination should be entrusted to a National Payment Council formed by high level representatives of NBR, RBA, TransFonD and the Romanian Government (represented by the Ministry of Economy and Finance). Only this kind of structure could ensure a dialogue and decision framework, in a responsible environment and with an adequate authority, and could coagulate all the parties involved in the national implementation of the European projects. This model was applied by several European countries such as Netherlands, Ireland, and Italy in order to plan and monitor SEPA implementation.

This Council could ensure a proper cooperation with the representatives of consumers, companies and service providers. All the parties impacted by the three projects should be asked to prepare strategies and individual plans and these should be centralized and harmonized between them and with the European deadlines. The result, the National Implementation Plan, should be approved by all responsible parties and monitored by the National Payment Council.

In our opinion, such a national approach is absolutely necessary for a smooth and correlated implementation of the three European projects in respect of payments in Romania.

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