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EDITORIAL

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SCIENTIFIC REPORTS / VĚDECKÁ SDĚLENÍ

FROM NEW ECONOMIC LITERATURE / Z NOVÉ EKONOMICKÉ LITERATURY

International Scientific Conferences at the University of Finance and Administration

Mezinárodní vědecké konference na Vysoké škole finanční a správní

MOJMÍR HELÍSEK

For any university, the holding of international scientific conferences has an utmost importance for presentation of the university in the professional circles. Such conferences offer the experts in a given filed an opportunity not only to communicate the results of research and to meet, but also to establish new contacts and exchange ideas informally. In this regard, the University of Finance and Administration (VŠFS) has extensive experiences. Let us take the opportunity to mention some of the most significant events concerning the economic issues that have been held in the past few months.

On 16 September 2011, the 14th Conference: **Human Capital and Investments in Education** took place in the Congress Centre of VŠFS. With the participation of experts from the Czech Republic, Canada, Poland, Slovenia and Great Britain the focus was mainly on the role of education as a development factor of society, but also as a valid social force capable of facing the factors limiting the functioning of the social system. As concluded at the conference, the education represents an element promoting a successful process of necessary reforms in all areas (including the pension and health care reforms widely discussed in the media). Maybe, that is why the part of the discussion focused on corruption and related phenomena allowing to drain public funds for the benefit of private lobby groups.

The 5th Conference: **Financial Markets, their Regulation and Supervision in the Course of the World Financial and Economic Crisis**, held in cooperation with the Czech National Bank on 1and 2 June 2011, was met with great interest in the professional circles. Among other, the conference dealt with various aspects of global financial crisis, its impact on financial markets, on major financial institutions and also with its impact on the Czech financial market as such. It was noted that the impact of the global financial crisis on the banking market in the Czech Republic was not significant, even though it was connected with a certain drop in commercial credit caused by the reduction of business activity (for instance in building engineering) as a result of crisis in real economy. As a matter of fact, the Czech insurance market remained almost unaffected by the financial crisis.

Under the auspices of the Ministry of Labour and Social Affairs, the conference: **Pension Reform – How to Proceed?** was held on 5 May 2011. At the conference, the latest results of research in the field of pension reform that is being continually conducted at VŠFS were presented. Beside the Pan-European pension system, the papers also supported the raising of the retirement age proposed by the government. However, as op-

posed to the government proposal to adjust reduction limits when calculating the retirement age, it was recommended that a major conceptual change of the public pension pillar as a whole be made by dividing the system into the social and insurance pillar.

Another important event was a conference entitled **The Czech and World Economies after the Global Financial Crisis**, held under the auspices of the Czech National Bank's Governor on 25 November 2011. The conference focused on the economic perspectives of new EU member states and the stricter conditions regarding cohesion funds, the fiscal policy rules and the euro area perspectives. During the conference, the winners of the Professor František Vencovský Prize were announced. The contest was named after professor František Vencovský, a prominent Czech economists. The programme included the presentation of the winning works, especially the work focusing on the Basel III regulation, and the theme of rational inattention applied to the monetary policy.

Apart from these economic topics, this year the University of Finance and Administration also gave an option to present the results of research at **Marketing Communication or The Knowledge Society – Science and Education in the 21st century** conferences.

More detailed information on conferences can be found at the website of the University of Finance and Administration in the Science and Research section – Conferences and Seminars (http://www.vsfs.cz).

Pořádání mezinárodních vědeckých konferencí je významnou prezentací každé vysoké školy mezi odbornou veřejností. Konference jsou příležitostí nejen ke sdělení výsledků výzkumů a k setkávání odborníků v dané oblasti, ale i k navázání nových kontaktů a k neformální výměně názorů. Vysoká škola finanční a správní má v tomto směru bohaté zkušenosti. Uveďme několik nejvýznamnějších akcí s ekonomickou problematikou, které proběhly v nedávných měsících.

Dne 16. září 2011 se v Kongresovém centru VŠFS konal již 14. ročník konference **Lidský kapitál a investice do vzdělání**. Za účasti odborníků z České republiky, Kanady, Polska, Slovinska a Velké Británie se pozornost soustředila na roli vzdělání nejenom jako rozvojového faktoru společnosti, ale i platné společenské síly schopné čelit faktorům omezujícím efektivnost fungování společenského systému. Vzdělání tedy podle závěrů konference představuje element podporující úspěšný průběh nutných reforem ve všech oblastech (včetně mediálně velmi diskutovaných reforem penzí a zdravotnictví). I proto se část debaty zaměřila na problematiku korupce a s ní spřízněných jevů umožňujících vyvedení veřejných prostředků ve prospěch soukromých lobby.

Pátý ročník konference **Finanční trhy a jejich regulace v podmínkách doznívání světové finanční krize**, pořádané ve spolupráci s Českou národní bankou, proběhl za velkého zájmu odborné veřejnosti ve dnech 1. a 2. června 2011. Konference se zabývala mimo jiné různými aspekty světové finanční krize, jejím vlivem na finanční trhy, na významné finanční instituce, a také jejími dopady na český finanční trh. Bylo konstatováno, že dopad světové finanční krize na bankovní trh v České republice nebyl příliš citelný, i když byl spojen s určitým poklesem podnikatelských úvěrů, způsobeným omezením podnikatelských

aktivit (např. ve stavebnictví) v důsledku krize v reálné ekonomice. Finanční krize však se prakticky nedotkla českého pojistného trhu.

Pod záštitou Ministerstva práce a sociálních věcí se konala dne 5. května 2011 konference **Důchodová reforma - Jak dál?** Na konferenci byly prezentovány nejnovější výsledky výzkumu v oblasti důchodové reformy, který dlouhodobě probíhá na VŠFS. Vedle Panevropského penzijního systému bylo v příspěvcích podpořeno i vládou navrhované zvyšování důchodového věku. Místo vládního návrhu na změny redukčních hranic při výpočtu důchodu však byla doporučena zásadní koncepční úprava celého veřejného důchodového pilíře jeho rozdělením na pilíř sociální a pojistný.

Významnou akcí byla dále konference **Česká a světová ekonomika po globální finanční krizi,** pořádaná pod záštitou guvernéra České národní banky dne 25. 11. 2011. Na konferenci zazněly zejména příspěvky o ekonomických perspektivách nových členských zemích EU, o zpřísněných podmínkách ke kohezním fondům, o pravidlech fiskální politiky nebo perspektivě eurozóny. Na konferenci byli také vyhlášeni vítězové soutěže o Cenu profesora Františka Vencovského, významného českého národohospodáře. Pozornost zaujala prezentace vítězných prací, zejména práce na téma regulačního programu Basel III a také na téma teorie racionální nepozornosti, aplikované na měnovou politiku.

Kromě těchto ekonomických témat nabídla Vysoká škola finanční a správní v tomto roce také možnost prezentace výsledků výzkumů na konferencích **Marketingová komunikace** nebo **Vzdělanostní společnost – Věda a vzdělání ve 21. století**.

Bližší informace o konferencích naleznou zájemci na www stránkách Vysoké školy finanční a správní v sekci Věda a výzkum – Konference a semináře (http://www.vsfs.cz).

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Redistribution Systems and Contextual Games

Redistribuční systémy a kontextuální hry

PETR BUDINSKÝ, RADIM VALENČÍK

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Abstract

The goal of this article is to demonstrate how mutually inter-related the two directions taken by the expansion and perfection of the game theory apparatus are, on one hand in the examination of redistribution systems and on the other hand in the analysis of contextual games. And to take advantage of this opportunity to present the latest findings attained in both areas and at the same time to characterize one of the most important types of the objects that our team has come across in the execution of the program as defined above – structures based on the mutual covering-up of the breaching of rules and generally accepted principles. These are objects without the theoretical grasp of which it is not possible to adequately describe the essence and social contexts of corruption and similar phenomena. And therein lies the social relevance and the originality of the topic. From the perspective of the development of science, the mentioned approach makes it possible, among other things, to explain some apparent discrepancies between game theory and this theory inspired by experiments.

Keywords

redistribution systems, contextual games, parallel games, structures based on mutual covering-up

Abstrakt

Cílem předloženého článku je ukázat, jak spolu vzájemně souvisejí dva směry, kterými se ubírá rozšíření a zdokonalení aparátu teorie her, a to na jedné straně při zkoumání redistribučních systémů, na straně druhé pak při analýze kontextuálních her. Při této příležitosti pak prezentovat nejnovější poznatky dosažené v obou oblastech a současně charakterizovat jeden z nejvýznamnějších typů objektů, na který náš tým při realizaci výše tematizovaného programu narazil – struktur založených na vzájemném krytí porušování pravidel a obecně přijatých zásad. Jedná se o objekty, bez jejichž teoretického uchopení nelze adekvátně popsat podstatu a společenské souvislosti korupce a obdobných jevů. V tom spočívá společenská aktuálnost i původnost tématu. Z hlediska rozvoje vědy pak uvedený přístup umožňuje kromě jiného vysvětlit některé zdánlivé rozpory mezi teorií her a touto teorií inspirovanými experimenty.

Klíčová slova

Redistribuční systém, kontextuální hry, paralelní hry, struktury založené na vzájemném krytí

Introduction

In 2006 the team at VSFS started to execute the program that could be briefly characterized as the deciphering of human behavior using game theory, i.e., clarifying why people and groups of people behave the way they do. Neither the problem nor the idea to use game theory for its resolution are original. Explaining human behavior is an ancient topic of most of the social sciences and game theory has also posed – and continues to pose – this question ever since it was formed as a scientific discipline. The original in the approach of our team was and is that:

First: It establishes the said topic comprehensively within the context of the issue of the preparation and implementation of reforms in the area of social investing and social security.
Second: For its resolution it develops its own modifications or expansions of the game theory apparatus so that it is possible to grasp the given issue using exact mathematical instruments.

The article is related to the series of four articles in the ACTA periodical, in which theoretical sources of the approach based on examination of redistribution systems by means of game theory are described in detail. The article is partly based on certain latest contributions (Valenčík-Budinský 2010, Heissler-Valenčík 2010, Šnajdar-Valenčík 2011), which were published recently or which were being published together with it. Some of the pictures from them have been adopted (as indicated for each picture), a part of them is presented for the first time (as also indicated). The texts are original and contain findings published for the first time, only a minor part has been adopted, revised and completed based on previous publications.

1 Briefly on the Context in Which the Program of the Deciphering of Human Behavior Is Being Executed

A major part of the reforms, the significance of which is currently being emphasized, are changes in the area of the pension system, the system of financing of health care and the system of financing of education. Reforms in these areas are usually conceived independently and the urgency and significance of the reforms are usually discussed according to the amount of money that is being redistributed via corresponding systems.

The need to apply the game theory apparatus for the analysis of human behavior emerged during the work on two successive projects of the CR GA: Effectiveness of Investing into Human Capital (carried out in 2003-2005) and Investing into Social Capital and Effectiveness (carried out in 2006-2008). One of the results of the work on these projects was the proving of the existence of significant linkages among the reform of the pension system, reform of the financing of health care and the reform of the financing of education, as these are systems of social investing and social security supported by public resources. In these systems one of the important criteria of the effectiveness of social investing (in the area of education as well as health care) is to what extent they contribute to the stability (sustainability and equilibrium) of social security systems (i.e., the financing of health care itself, as well as of the pension system). From this perspective arises the fundamental

importance of the issue of the financing of investments into education within the context of reforms in other areas. From a practical point of view, this means, for example, creating a motivating environment for the synergetic functioning of the aforementioned systems of social investing and social security so that they support the possibility of extending the horizon (possibly even the zenith) of the voluntary productive engagement of people. Practically focused projects were also carried out based on the aforementioned generally theoretical results.

Experience from discussions during the preparation of reforms as well as with what occurs during their practical implementation shows that by far not everyone who is capable of influencing the given area is concerned with the most effective possible resolution of problems. This concerns not only the provable politicization of the reforms issue, but also – and this is also provable – the building-in of various mistakes into various reform activities that should make it possible or actually do make it possible to extract means from the reforms implementation in favor of various lobbies. And these are not random and unconscious mistakes, but rather intentional and systematic mistakes, frequently thinking several steps ahead and counting on various alternatives of development.

These findings brought our team – which was put together during the work on the above mentioned GA CR projects – to the conclusion that if the given issue is to be dealt with theoretically as well as practically, the game theory apparatus needs to be applied to it. As far as theoretical research is concerned, this means not only answering the question of "how should it be", but also the question of "who is preventing the implementation of an effective solution and how and why are they doing so and who is able to implement an effective solution in practice and how". As far as the practical aspect is concerned, this means identifying – with a help of the game theory apparatus – who the real players are in the given area, what their objectives are, what strategies they are using, what the cause of the conflicts that take place here is, etc.

Since 2009 and within the above stated context and with the above stated objectives, work is being carried out at VSFS on the GA CR Redistribution Systems Theory project. This is an original direction of expansion of the game theory apparatus that sets as its goal to comprehend what is taking place in reality from the perspective of the aforementioned issues.

2 Possibilities and Limits of the Redistribution Systems Theory

The Delimiting of Redistribution Systems (Valenčík 2008) was based on the need to create a model that would make it possible – within the context of the issues mentioned in the previous part – to identify, describe and analyze what is taking place in reality. The following were selected as the basic elements:

1. The possibility of creating coalitions that give preferential treatment to their own members at the expense of other members.
2. Expressing the process of negotiations during which coalitions are formed and the distribution of payouts occurs.

3. Existence of the dilemma between a player's own profit and the effective functioning of the entire system.

In other words, a redistribution system is a system in which negotiations about the formation of coalitions and the distribution of payouts occurs and some players may receive preferential treatment and others may receive unfavorable treatment, i.e., be discriminated against. The greater this preferential treatment and discrimination is, the more the system performance will decline. We model this using a corresponding redistribution equation, which determines the redistribution area.

Selection of the basic elements is subject to two conflicting criteria. On one hand, there should not be too many of them, because in the opposite case it would not be easy and probably even realistic to create an initial consistent model of the corresponding system (initial in the sense that with its gradual expansion we are able to also model systems with more elements). On the other hand, it must ensure the sufficient explanatory power of the mathematical model, so that the results can be interpreted from the perspective of the practical context suggested above. In other words, what we input into the model should not make it too simple or too complex from the perspective of the use of mathematical means in the analysis of social reality.

For the three player case and some other restrictions (full informedness of players, their equal voting, respectively influential, powers, non-existence of time delays or transaction costs) we were able to create several types of functional models and prove some important assertions. The most significant results we attained can be briefly characterized as follows:

1. If the players are forming fully discriminating coalitions and if the negotiations of the players are governed by rules that are acceptable from an intuitive perspective, the sequence of the payouts of players based on the coalitions negotiated between any two players converges to three points on the redistribution area, and the set of these points is equal to the sole and final internally and externally stable set. These three points were named discriminating equilibriums.
   Several comments to this:
   - A fully discriminating coalition of two players in a system with three players is one where the player outside of the coalition receives the smallest possible payout.
   - When speaking of intuitively acceptable rules, we mean the following: Each player a) proposes such a distribution of payouts where he and one of the other players becomes better off; b) presents the proposal to the player with which he can be the better off player; c) the proposal of his payout ranges between the biggest one that he could get under these conditions and the biggest one that he could get if he negotiated with the third player (with the player with which he could get the smaller largest possible payout).
   - The set is internally stable if it is not possible to say about any of its elements that it is better than any other element of this set. The set is externally stable if it holds for every element of the original set (in our case the redistribution area) that among the elements of the externally stable set there is at least one that is

better. An element of a set is better than another element of a set if at least two players have a bigger payout in it.

2. The players can also negotiate a jointly acceptable equilibrium (our term), in which they will be better off in comparison with the average payout if they attempt to proceed as stated in the previous point. The jointly acceptable equilibrium point is determined unambiguously.
   Several comments to this:
   - The average payout is determined by the sum of his (two) payouts in the case where he is a member of the winning coalition, and the payout where he himself is fully discriminated against
   - There is a precisely defined and intuitively acceptable strategy via which the players arrive at the jointly acceptable equilibrium, and this strategy is clearly determined by these negotiations (Valenčík-Budinský 2010). Interesting and important is the fact that it is also possible to arrive at this equilibrium using several other approaches.
   - This equilibrium has certain specifics in comparison with the Nash solution, the Kalai-Smorodinsky solution, the Shapley value.
3. The process of negotiating fully discriminating coalitions as well as the jointly acceptable equilibrium is very sensitive to external influences. One of the most important objectives of the theory is to reveal and describe which influences are involved and what the mechanism of their functioning is, particularly the mechanism of the functioning of those influences that cannot be compensated by concessions during the negotiations.

A comment to this: differentiating the influences that can be compensated by concessions during negotiations and those that cannot be compensated is absolutely fundamental. And the answer to this question has an interesting interpretation, to which we will get shortly.

4. The functioning of external influences can be – at least in the first approximation – described using parallel games, i.e., games during which some of the players get payouts from the system without the other players being aware of this.
   Several comments to this:
   - A redistribution system containing parallel games can be described, for example, by the following set of equations:

$$\sum_{j=1}^{M} x_{0j} = \sum_{j=1}^{M} e_{0j} - \eta_0 R_0 \left(X_0 - E_0 \right) - \sum_{i=1}^{N} \pi_i \sum_{j=1}^{M} x_{ij}$$

   An expanded set of redistribution equations for the case of parallel redistribution games can be read as follows: in the basic redistribution game the sum of the payouts of players ($\sum^{M} x_{ij}$) equals how much they could get if they received payouts according to their performance ($\sum_{j=1}^{M} e_{0j}$), but decreased as a result of the deviation of the payout of players from the performance of players ($\eta_0 R_0 \left(X_0 - E_0 \right)$) and also

by the negative influence of parallel redistribution games on the total performance of the basic redistribution system ($\sum_{i=1}^{N} \pi \sum_{j=1}^{M} x_{ij}$).

- The set of the equations listed above describes only the "morphology" of that which plays a triple role: it predetermines visible coalitions in redistribution systems, it diverts means from the system in favor of some players and their groups and it decreases the system performance.
- An important phenomenon – although in retrospect not all that surprising – is the fact that the element of the differing informedness of players enters the game. For fundamental reasons, only some players can know about that which predetermines the formation of coalitions. At this point, however, we do not have a sufficient idea about the form of the structures that are created this way. There is nothing left to do but to start searching for them.

Already at the beginning of the elaboration of the redistribution systems theory it was clear that it will have to be expanded by additional elements. And not only in the sense of adding more partial aspects to it, but also in the sense of fundamental generalizations. The question of "What should be added to the redistribution systems theory?" – as an unexpressed but frequently also expressed question – accompanied practically all discussions within our team or presentations of results to the public. It gradually crystallized into an interesting position:

- Partial expansion of redistribution systems theory is connected with the inclusion of those influences and elements that are "visible", i.e., about which all players are informed.
- The fundamental expansion or generalization of the approach is then based on the revealing of what is hidden and even tries to remain hidden.

In other words: the reality with which we are dealing can be viewed from the perspective of a certain polarity between what can be seen and what cannot be seen, between what all players are informed about and what some players are not informed about. The redistribution systems theory is then proving to be one of the poles of this polarity, as well as a suitable "reading prism" capable of revealing what remains hidden and keeps hiding. The discovery of this fact is one of the most significant results of redistribution systems theory, as well as a self-reflection of its limits.

3 Contextual Games and Identification of Structures Based on Mutual Covering-up

The issue that lead to the discovery of the contextual character of some games was faced by our team already when dealing with the apparent discrepancy between theory and experiments, which is described in the Valenčík-Budinský (2010) article. The decisive step – based on T. Kosička's (2010) initiative – was then taken in connection with the problem of the interpretation of experiments based on the prisoner's dilemma motives.

What is the issue? In experiments examining the behavior of people in situations of the prisoner's dilemma game type, we came across a considerable discrepancy between what theory says and how people actually behave. In the prisoner's dilemma, both players have two options – cooperate or betray. The selfish choice to betray leads to greater benefits than cooperation if the second player cooperates, but to lesser benefits if the second player also betrays. The rational behavior of both accused persons is to testify against the other person, even though the optimal solution for both of them together is for both to remain silent. The result where betrayal is the right decision has lead to many discussions and explanation attempts. Several widely published experiments were also performed. Let us show the results of the most well-known and most important experiments, as per the following table.

Table 1: Results of experiments on the prisoner's dilemma motives

	non-cooperation	cooperation	unknown decisions
Shafir, Tversky (1992)	97	84	63
Li, Taplan (2002)	83	66	60
Busemeyer (2006)	91	84	66

Source: Kosička (2010).

The names and year show who performed the corresponding experiments and when. The numbers in the columns express the percentage representation of "betrayals", i.e., cases when the corresponding player who had guaranteed information that the other player betrayed him (first column) or did not betray him (second column), or was not informed about the second player's decision (third column), opted for the strategy of non-cooperation. Other experiments showed that the willingness to betray or cooperate is influenced to a large degree by the size of the reward (punishment).

Let us now take a closer look at where is the difference between how players (i.e., specific people) should behave in theory versus how they actually behave:

1. If we do not know how the other player decided, we should always betray (and not only in 60-66 % of cases of non-cooperative behavior).
2. If we do know that the other player betrayed us, we should betray all the more so (and not only in 83-97 % of cases of non-cooperative behavior).
3. If we know that the other player is cooperating, why betray him (and why in 66-84 % of cases of non-cooperative behavior, i.e., in even in a greater number of cases than when we don't know how the other player behaved)? (For the sake of precision, let us add that this concerns not only a discrepancy between theory and experiment, but – at least at first glance – a glaring discrepancy between two cases tested experimentally.)

How can the "irrational" behavior be explained (if, however, it really is irrational behavior)? We have to proceed from the contextual character of games, because in reality a situation where a prisoner's dilemma type game is played without repetition and is completely isolated from other games occurs very rarely. In most cases during the course of a game, other people (who we can consider to be players in other games) are observing how indi-

vidual players decide, and based on this they also create a relationship to the participants of the given game. In reality, it is not a clean game without repetitions played by certain two players that is taking place, but rather a number of games in which other players also participate and these games also include game situations that could be called contextual games with quasi-repetitions.

Therefore we can view each game that we are playing in reality as a contextual game, i.e., a game that we are playing in the context of other games. We are introducing the term "contextual games" as an original term. In theoretical literature we will find only the designation of some starting points with which we are working, such as Meliers – Birnabou (1981). But this is only a partial view without an apparatus that would make it possible to analyze the contextual games phenomenon.

The reflection itself of contextual games depends considerably on our experience and the transformation of this experience into the "on-line" mechanisms of our (human) decision-making in which important roles are played by imagination, emotions and other attributes of the psyche. Let us demonstrate how a game of the prisoner's dilemma type changes if we begin considering it as a game played in context with some other games.

Table 2: Payout matrix of a game of the prisoner's dilemma type on the example of the keeping or breaching of an agreement

		X_2	
		cooperation	non-cooperation
X_1	cooperation	6; 6	0; 8
	non-cooperation	8; 0	3; 3

Source: Created by the author.

X_1, X_2 are players that have two strategies – comply with an agreement or breach an agreement (breach agreed upon or acknowledged rules). Their payouts are presented in the matrix. Now let us assume that from the perspective of one of the players (e.g., X_1) the game has a certain context, respectively is played as a contextual game in the sense that the community in which this player lives may be (but also does not have to be) informed about the game's outcome. If he complies with the agreement and the other players in the given community see this, it will contribute to the increasing of his credibility capital (reputation). If, conversely, he does not comply with the agreement and the other players in the community find out about this, his credibility capital (reputation) will decrease. Let us also assume that the credibility capital (reputation) can (at least approximately) be valued in units in which the payouts from the prisoner's dilemma type games are made, and the corresponding player also values it. For example, the player values the loss in the event of non-compliance with an agreement with -6 points, and the increase in the event of compliance with the agreement with +2 points (trust is lost faster than it is gained). The following table shows how the situation changes.

Table 3: Payout matrix of a game of the prisoner's dilemma type with the taking into account of credibility capital (reputation)

		X_2	
		cooperation	non-cooperation
X_1	cooperation	6+2; 6+2	0+2; 8-6
	non-cooperation	8-6; 0+2	3-6; 3-6

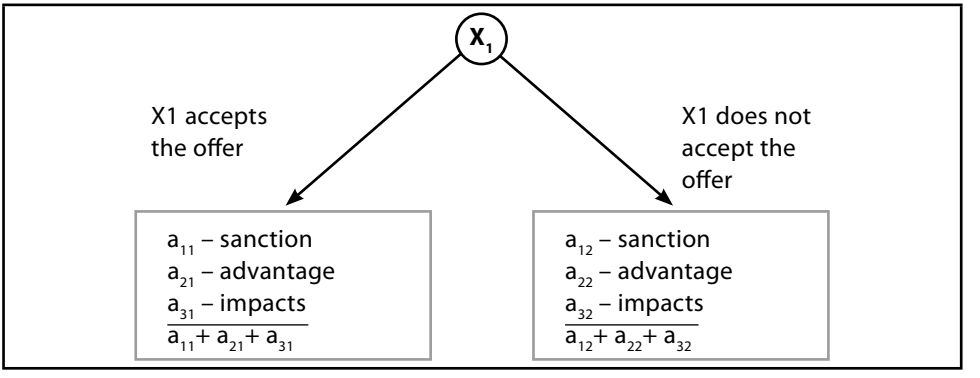
Source: Created by the author.

We can see that the situation changes dramatically. It is worthwhile for both players to cooperate. But only if the original payouts and payouts connected with the gain or loss of credibility capital (reputation) have certain values. The situation can be different if the values are different. As tends to be the case, the functioning of credibility capital (reputation) is dependent on certain assumptions. These include particularly the following:

- The possibility that one of the players (e.g., X_2) discovers that another player (e.g., X_1) is breaching agreements or rules.
- The possibility of the spreading of information by a player (e.g., X_2) about the breaching of agreements by another player (e.g., X_1).
- The possibility of sanctions issued by other players (community in which contextual games are taking place) against the player breaching agreements (e.g., X_1).

But the player who discovers the breaching of rules (let us call him player X_2) also has a possibility other than spreading information about the breaching of rules. Instead of spreading information about the breaching of rules, he can persuade the player that breached the rules (let us call him player X_1) to take action that is advantageous for player X_2. In the next illustration no. 1 we will demonstrate the dilemma of a player who is deciding whether to allow himself to be blackmailed or not.

Figure 1: Schema describing the blackmailed player's dilemma



Source: Created by the author

Here:

a_{11} is the valuation of the sanction that the blackmailed player will face if he accepts the blackmailing player's offer (in the given case one can assume that it will be zero)

a_{12} is the valuation of the sanction that the blackmailed player will face if he does not accept the blackmailing player's offer (in the given case one can assume that it will be quite severe)

a_{21} is the valuation of the advantage that the blackmailed player will have if he accepts the blackmailing player's offer (in the given case one can assume that it will have a certain value)

a_{22} is the valuation of the advantage that the blackmailed player will have if he does not accept the blackmailing player's offer (in the given case one can assume that it will be zero)

a_{31} is the valuation of the risks and negative consequences that the blackmailed player assigns to the fact that he allows himself to be blackmailed and starts to cooperate (in the given case this concerns a negative value and usually a big one)

a_{32} is the valuation of the risks and negative consequences that the blackmailed player assigns to the fact that he does not allow himself to be blackmailed and does not start to cooperate (in the given case this value is zero)

$a_{11}+ a_{21}+ a_{31}$ is the sum of all of the blackmailed player's payouts if he accepts the cooperation offer

$a_{12}+ a_{22}+ a_{32}$ is the sum of all of the blackmailed player's payouts if he does not accept the cooperation offer

Some notes to this:

1. The payout of the blackmailed player, no matter how he decides, consists of several components. As we have seen, this also holds in similar cases, i.e., not only when he faces the dilemma whether to allow himself to be blackmailed or not. When illustrating this in a corresponding schema, it is good to list the individual components under each other, so that also in the schema a brief characteristic can be assigned to them at least in one word. This makes the schema clearer. Anyone studying it will have a better idea of what is going on. The total sum of the payouts is then stated under the line.
2. In the model, the following applies in the logic of the matter:
   - if $a_{11}+ a_{21}+ a_{31} > a_{12}+ a_{22}+ a_{32}$, the player accepts the offer and allows himself to be blackmailed;
   - if $a_{11}+ a_{21}+ a_{31} < a_{12}+ a_{22}+ a_{32}$, the player does not accept the offer and does not allow himself to be blackmailed.
3. For the sake of completeness, we also include in the schema the values of those variables that are equal to zero in the given case, as they can have non-zero values in the schematic expression of similar situations.
4. A player can be mistaken when handling the said dilemma. The origin of the error can be in one or more of the following mistakes:

- The player is not aware of and does not consider ("does not include") an influence or consequence that plays a significant role in reality (in our case we stated three, there can be more in real situations).
- The valuation of an influence is inadequate (in the given case, consequences that will be faced by the blackmailed player if he accepts the cooperation offer and allows himself to be blackmailed usually tend to be significantly undervalued). This is usually the case because the player is unable to imagine how the game will continue to develop (we will deal with this later on).

5. One of the benefits of the presented schema is, among other things, that it makes it possible to identify, differentiate and describe individual cases of errors. In more complicated situations, where it is necessary to also take the other player's (the one who is doing the blackmailing) reaction into account, the cause of errors can also be an incorrect estimate of parameters according to which the other player is making his decisions. This is a considerably more complex case, which we will also discuss later on.

Let us demonstrate specific decision-making cases:

First example:
Let us assume the player gives the following valuation:

a_{11}	=	0		a_{12}	=	-7
a_{21}	=	+2		a_{22}	=	0
a_{31}	=	-5		a_{23}	=	0
Σ	=	-3	>	Σ	=	-7

The player accepts the cooperation offer because -3 > -7. But in this case the player could have overvalued the sanction that he would face for committing an act that makes it possible for him to be blackmailed, or conversely undervalued the negative consequences of allowing himself to be blackmailed.

Second example:

a_{11}	=	0		a_{12}	=	-5
a_{21}	=	+2		a_{22}	=	0
a_{31}	=	-8		a_{23}	=	0
Σ	=	-6	>	Σ	=	-5

Let us assume the player gives the following valuation:
The player does not accept the cooperation offer because -6 < -5. The player becomes aware of the negative consequences of what would occur if he allows himself to be blackmailed.

Third example:

a_{11}	=	0		a_{12}	=	-5
a_{21}	=	+4		a_{22}	=	0
a_{31}	=	-8		a_{23}	=	0
Σ	=	-4	>	Σ	=	-5

Let us assume the player gives the following valuation:
The player once again accepts the cooperation offer because -4 > -5. He is enticed by the relatively high reward for cooperating if he allows himself to be blackmailed. The high reward that he gets for cooperating could have ensued from the consideration (and precise valuations) of the second player. He set it exactly so that his offer would be accepted by the blackmailed player.

The examples listed above implicitly contain another important moment, which is the fact that the player must be able to adequately guess the future development. But in order to be able to do this, he must be capable of imagining what this future development will look like. In other words – if the corresponding valuations are to be adequate, he must be able to think several moves ahead. And for this we need to expand our original model considerably. There are a number of possibilities. What we will need for this, we have already in a certain sense inserted into our first schema, which described the basic dilemma of a player who is deciding whether or not to allow himself to be "drawn" into a structure based on mutual covering-up.

4 Tools of the Analysis of Games Based on Mutual Covering-up

As follows also from the previous methodological insert, the modeling of structures that are based on mutual covering-up is relatively difficult. We only have the first tools available to use and we are generalizing the first experiences from their use. We have to take into account the following, among other things:

1. That which one player (X_2) forces another player (X_1) to do depends on the contextual game type. If, for example, discriminating coalitions are being created, this can involve the support of the formation of such a coalition. Both players then face the following risk: a third person discovers that they are establishing a structure that is based on mutual covering-up, and this third person then faces a dilemma whether to spread news of his discovery or use the new information for the benefit of his game based on mutual covering-up. Etc.
2. In contextual games players accept various roles. (This can also be stated the other way around – contextual games select players into various roles and imprint certain typical game characteristics onto them.) If we want to put a payout matrix together, we have to take into account not only various types of contextual games that are based on mutual covering-up, but also the various roles that the players accept. Structures based on mutual covering-up can be very complex and developed as their development is subject to laws that are very similar to natural selection (only the most viable ones survive).
3. If the process of identifying the breaching of rules is institutionalized, the structures based on mutual covering-up must have the ability to install their players (who are subordinated to behavior based on mutual covering-up) into all institutional structures of this type.

In most games based on mutual covering-up, one player (the one generating the game that is based on mutual covering-up) controls (establishes power over, influences, blackmails) a larger number of players (those that were caught while breaching rules), the

roles of which usually supplement each other. In real situations, we also have to take into account the fact that systems have a more complex structure in the following two directions:

1. They are hierarchical systems; one of the systems consists of sub-systems at a lower hierarchical level.
2. They are systems in which institutions specializing in restricting rule breaching actions are formed.

Re: 1. If hierarchical systems are involved, it is significant who discovered the breaching of rules and where, i.e., what the relationship is between player X2 (the one who discovered the breaching of the rules and is abusing this fact) and X1 (the one who committed the breaching of rules and was caught). The following possibilities can occur here:
1.1. Both are in the same sub-system.
1.2. Each of them is in a different sub-system at the same level.
1.3. X_1 is in a sub-system, X_2 is in a hierarchically higher system.
1.4. X_2 is in a sub-system, X_1 is in a hierarchically higher system.
1.5. Both are in a hierarchically higher system.
(What can take place depends on the type of relations between the sub-systems and the system as well as among the sub-systems themselves.)

Re: 2. This concerns systems in which institutions specializing in restricting rule breaching actions are being formed. These are institutions in the following areas:
2.1. Identification of rule breaking.
2.2. Spreading of information about rule breaking.
2.3. Judging the degree of rule breaking and imposing sanctions.
2.4. Generating the creation and powers of institutions oriented on restricting actions that breach rules and generally accepted principles.

As has already been mentioned in the previous methodological insert, it is not completely obvious how to approach the problem and what should be the basis for grasping it. After the discovery of the phenomenon that was referred to as structures based on the mutual covering-up of the breaching of rules and generally accepted principles, our team did not know for several months how to describe and analyze it. Eventually, the path based on a certain symmetry between how a structure based on mutual covering-up is formed (which we presented – although only in the first approximation – in the part called Contextual games and identification of structures that are based on mutual covering-up), and how it could be disturbed proved to be promising. In other words, the symmetry between incorporating a player into a structure (binding him) where this player deals with a corresponding dilemma, and his eventual departure from the structure that is based on the mutual covering up (his release) where he also deals with a certain dilemma. Looking back, the discovery of the fact that the problem must be approached this way may appear trivial. But this is a frequent case when a theory is being formed.

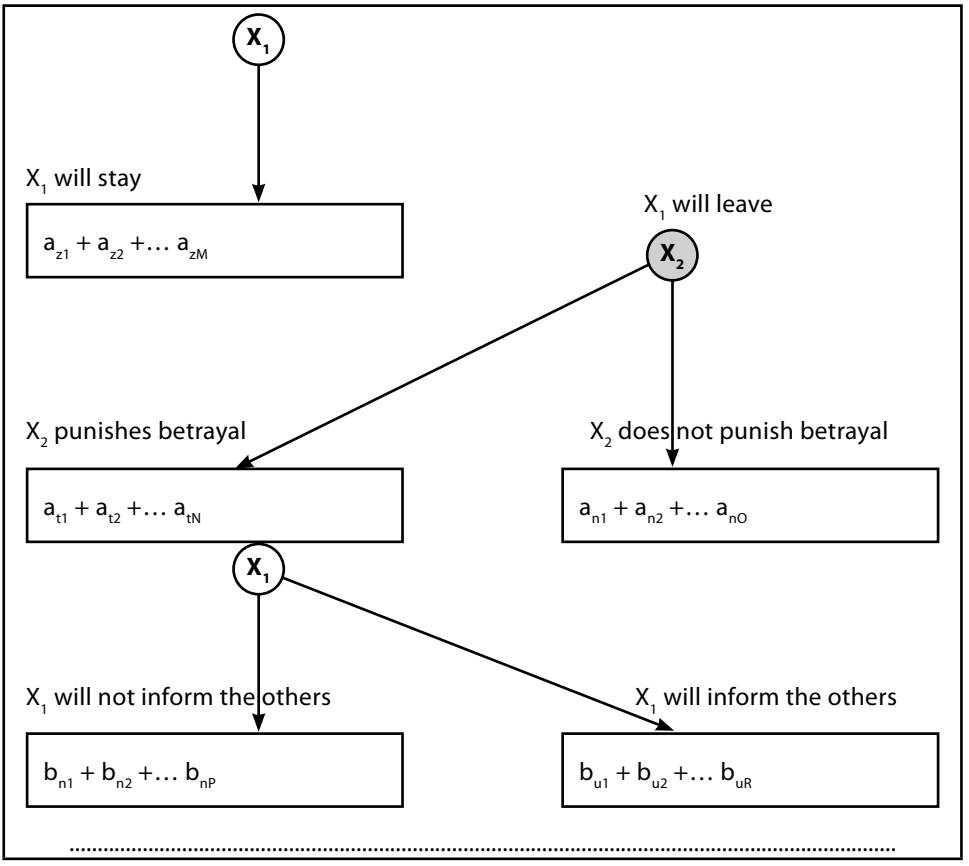
But contextual games are more complex in the case of the analysis of situations formed during the decision-making of a player about exiting a structure that is based on mutual covering-up. More precisely – if in a case where the player is considering the dilemma

whether to commit to a structure that is based on mutual covering-up he leaves the situation's further development unaccounted for (generally he is not aware of everything that he could come across and on what the further development will depend on), then in a case where he is deciding about the possibility of exiting a structure he is able and forced to see more into the future. If he also saw into the future in a similar way in a situation where he is dealing with the dilemma of committing to a structure, his assessment of the consequences would presumably be more accurate.

Let us therefore assume that one of the players faces the dilemma whether or not to exit a structure that is based on mutual covering-up, i.e., whether to allow himself to continue to be blackmailed and take actions that are against his beliefs as well as that bring him considerable risks, or to resist and possibly even fight against the corresponding structure and publish what he knows about it with the intention of eliminating it or weakening its influence. At the same time we will assume that the structure's core (i.e., the players who decide how the structure will behave), which up until now we have considered to be one of the players, itself consists of several players, which we will take into account (not immediately, but at a certain moment).

We will only consider the case where player X_1 in the first phase (that we will model) considers only the possibility of departing "quietly", i.e., not making public what he knows and not taking a stance against the structure. The structure based on mutual covering-up (which in our model will represent player X_2) then by contrast has the chance to penalize the player (punish for the fact that he has stopped subordinating) or allow the departure to take place without notice. At the same time it of course knows (and player X_1 – from whose position we are putting the model together – also knows this) that if it allows him to depart without notice (without a penalty), player X_1 will not make what he knows public. If it punishes him, the player can make this public. This will cause damage to the structure. But if it allows him to leave and does not punish him, other players forming the structure may find out about this and follow the first player. We can depict the situation as a game in an explicit form, as shown in the following illustration.

Figure 2: Schema describing a game between a certain subject and structure



Source: Created by the author.

Here:

$a_{z1} + a_{z2} + \dots a_{zM}$

is the sum of all (i.e., a total of M) impacts on player X_1 (valued in units that are homogenous with the valuation of all other cases), if player X_1 stays.

See the following table for more details (if we were to interpret the individual impacts like in Figure 1).

Table 4: Schema describing a game between a certain subject and structure

a_{z1} – risk of disclosure
a_{z2} – possibility of a career in the structure
a_{z3} – rewards ensuing from the possibility to function in the structure
…
a_{zM} – increase in structure tied-ness
$a_{z1} + a_{z2} + a_{z3} \dots a_{zM}$

Source: Created by the author.

In a similar way, we can also interpret and characterize other cases in more detail, e.g.,:
$bu_1 + bu_2 + \ldots bu_R$
is the sum of all (i.e., a total of R) impacts on the structure represented in the model by player X_2 (valued in units that are homogenous with the valuation of all other cases), if player X_1 departs (as this player sees it, respectively values it), the structure decides to punish him and player X1 starts to inform against the structure.

It is necessary to emphasize that in the given case the entire model is built based on the valuation of one player, in the given case of the player who is deciding whether to remain or not, i.e., player X_1. The second player (entire structure based on mutual covering-up) can see and assess the situation differently. But if the first player is deciding, he has no choice but to guess how the structure will react, respectively which parameters of the situation the structure will assess and how it will assess them. Of course player X_1 can be wrong as the structure may assess the situation differently.

There can be many impacts on individual players. For example, in the case of the player who is deciding, it can be the risk that the activity of the entire structure will be revealed and penalized, that the player will be forced to perform activities that go against his beliefs and represent growing risk for him, that by joining the structure he sacrifices his own other promising possibilities, etc. Similarly, there are also many possible impacts on the second player (i.e., the entire structure).

The game can continue on (as is suggested in Figure No 3). For example, player X_2, i.e., the corresponding structure that is based on mutual covering-up, can decide whether it will escalate the situation and punish the player that is informing against it more severely, even at the price of the risks that emerge as a result of this. At the same time, it is necessary to also take into account the fact that games between the player who wants to leave the structure and the structure itself induce other games inside the structure, e.g., between those who favor a more conciliatory solution and those who favor a more severe solution.

The case of a contextual game (of the induced type in the given case) that starts to be played inside a structure that is based on mutual covering-up among players favoring a more severe approach and the players favoring a more conciliatory approach must be modeled using means that we have not used yet.

Let us take the simplest case of a core of a structure that is based on mutual covering-up, which – if the creation of coalitions among the players that form the core is to play a role – will include three players in this case. With fewer players coalitions could not form. Let us assume that each player considers the following components via which he values each of the possible situations:

a_{T+} positive consequence of a harsher stance, which can be read, for example, as that the functioning of the structure is able to provide higher payouts to the core players

a_{T-} negative consequence of a harsher stance, which can be read, for example, as that the functioning of the structure does not enable the given core player to leave the structure without being penalized if he himself felt this need

a_{M+} positive consequence of a softer stance, which can be read, for example, as that a certain precedent is being created for the given core player to be able to leave the structure without being penalized if he himself felt this need

a_{M-} negative consequence of a softer stance, which can be read, for example, as that that the weakening of the structure threatens payouts that the given player from the structure's core will receive

a_{V+2} positive consequence for the corresponding core player if he is in a coalition that won the vote on the harsher or softer stance and this coalition is formed by two players (one is now in the opposition)

a_{V+3} positive consequence for the corresponding core player if he is in a coalition that won the vote on the harsher or softer stance and this coalition is formed by three players (no players are in the opposition)

a_{V-2} negative consequence for the corresponding core player if he is not in a coalition that won the vote on the harsher or softer stance and he now finds himself in the opposition

Let us also assume the following:

1. These are all relevant components that must be taken into account in the given situation.
2. The values of the listed components are the same in the case of all three players. (Regarding this let us note that this is a considerable simplification from the practical point of view.)
3. The payout of each player is equal to the sum of all compatible components.

In this case, situations can occur, the complete list of which can be presented by the following table, which contains $2^3 = 8$ different possibilities:

Table 5: The payout matrix of players that form the core of a structure based on mutual covering-up

X_{21}	X_{22}	X_{23}
T ($a_{T+} + a_{M-} + a_{V+3}$)	T ($a_{T+} + a_{M-} + a_{V+3}$)	T ($a_{T+} + a_{M-} + a_{V+3}$)
T ($a_{T+} + a_{M-} + a_{V+2}$)	T ($a_{T+} + a_{M-} + a_{V+2}$)	~~M~~ ($a_{T+} + a_{M-} + a_{V-2}$)
T ($a_{T+} + a_{M-} + a_{V+2}$)	~~M~~ ($a_{T+} + a_{M-} + a_{V-2}$)	T ($a_{T+} + a_{M-} + a_{V+2}$)
~~T~~ ($a_{T-} + a_{M+} + a_{V-2}$)	M ($a_{T-} + a_{M+} + a_{V+2}$)	M ($a_{T-} + a_{M+} + a_{V+2}$)
~~M~~ ($a_{T+} + a_{M-} + a_{V-2}$)	T ($a_{T+} + a_{M-} + a_{V+2}$)	T ($a_{T+} + a_{M-} + a_{V+2}$)
M ($a_{T-} + a_{M+} + a_{V+2}$)	~~T~~ ($a_{T-} + a_{M+} + a_{V-2}$)	M ($a_{T-} + a_{M+} + a_{V+2}$)
M ($a_{T-} + a_{M+} + a_{V+2}$)	M ($a_{T-} + a_{M+} + a_{V+2}$)	~~T~~ ($a_{T-} + a_{M+} + a_{V-2}$)
M ($a_{T-} + a_{M+} + a_{V+3}$)	M ($a_{T-} + a_{M+} + a_{V+3}$)	M ($a_{T-} + a_{M+} + a_{V+3}$)

Source: Create by the author.

Here:

X_{21}, X_{22}, X_{23}	are players that form the core of the structure that is based on mutual covering-up
M, T	soft or harsh version of the stance that the corresponding player will take
~~T~~, ~~M~~	the corresponding alternative of the stance that did not receive support (the carrier of which finds himself outside of the winning coalition) has been crossed out
$(a_{T+} + a_{M-} + a_{V+3})$	one of the cases of the presentation of components from which the total payout of the corresponding player in the situation that occurred consists

The schema presented in table no. 3 is not nearly as complicated as could appear at the first glance. We will demonstrate this on an example. Let:

Valuation components:	Comment to this:
$a_{T+} = 8$	8 is greater than 5, i.e., in the given case the structure is on the rise, players value the proceeds from the structure more than the possibility of leaving
$a_{T-} = -3$	-3 is less than -4, i.e., the players relatively highly value the risk that the possibility of departing the structure will decrease
$a_{M+} = 5$	
$a_{M-} = -4$	
$a_{V+2} = 7$	the players assign a relatively high payout to the state where they find themselves in the winning coalition and one player ends up outside of it
$a_{V+3} = 0$	if all three vote the same way, the payout valuing the change of position has a zero value
$a_{V-2} = -10$	the players assign a relatively high negative payout to being left outside the winning structure

If we establish these valuations of the individual components, we get the following values:

Table 6: Payout matrix of the core players of a structure that is based on mutual covering-up, with specific values

X_{21}	X_{22}	X_{23}
T (8 + -4 + 0 = **4**)	T (8 + -4 + 0 = **4**)	T (8 + -4 + 0 = **4**)
T (8 + -4 + 7 = **11**)	T (8 + -4 + 7 = **11**)	M (8 + -4 + -10 = **-6**)
T (8 + -4 + 7 = **11**)	M (8 + -4 + -10 = **-6**)	T (8 + -4 + 7 = **11**)
T (-3 + 5 + -10 = **-8**)	M (-3 + 5 + 7 = **9**)	M (-3 + 5 + 7 = **9**)
M (8 + -4 + -10 = **-6**)	T (8 + -4 + 7 = **11**)	T (8 + -4 + 7 = **11**)
M (-3 + 5 + 7 = **9**)	T (-3 + 5 + -10 = **-8**)	M (-3 + 5 + 7 = **9**)
M (-3 + 5 + 7 = **9**)	M (-3 + 5 + 7 = **9**)	T (-3 + 5 + -10 = **-8**)
M (-3 + 5 + 0= **2**)	M (-3 + 5 + 0= **2**)	M (-3 + 5 + 0= **2**)

Source: Created by the author.

The resulting values are marked here in bold. For the sake of clarity, the next table indicates only the total size of the payouts.

Table 7: Payout matrix of the core players of a structure that is based on mutual covering-up, with specific values (just the outcome)

X_{21}	X_{22}	X_{23}
T (**4**)	T (**4**)	T (**4**)
T (**11**)	T (**11**)	~~M~~ (**-6**)
T (**11**)	~~M~~ (**-6**)	T (**11**)
~~T~~ (**-8**)	M (**9**)	M (**9**)
~~M~~ (**-6**)	T (**11**)	T (**11**)
M (**9**)	~~T~~ (**-8**)	M (**9**)
M (**9**)	M (**9**)	~~T~~ (**-8**)
M (**2**)	M (**2**)	M (**2**)

Source: Created by the author.

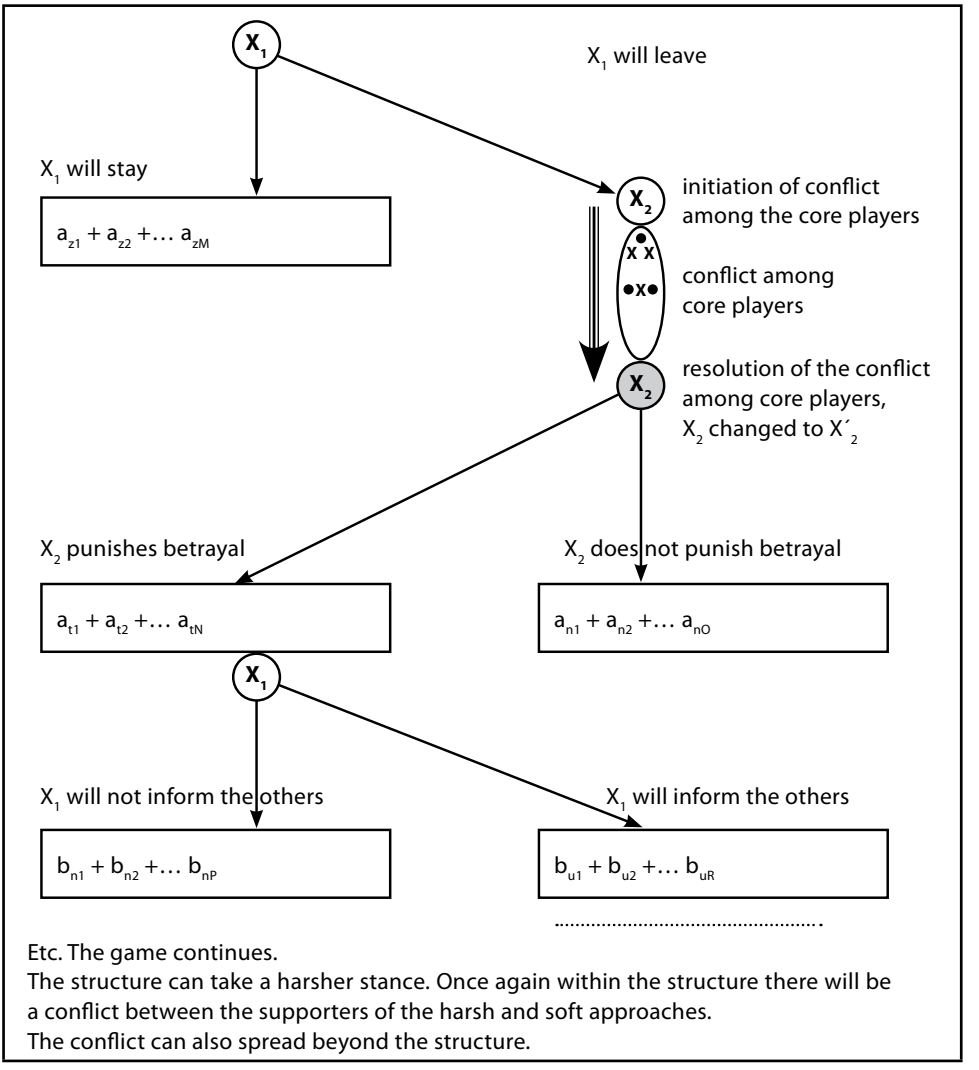
The table shows that with the given input data, each player:

1. Has an average payout of 4 when supporting the harsh approach, 3.5 when supporting the soft approach.
2. Has a higher payout three times and a lower payout just one time when supporting the harsh approach.
3. Can have the lowest payout (-8) when supporting the harsh approach, whereas when supporting the soft approach the least he can get is -6.

In general, it is possible to say that each player can count on the fact that the other players in the given case will support the harsh approach and thus for him it is also most advantageous to support the harsh approach. A more detailed analysis of decision-making under different parameters is beyond the scope of the presented contribution. We will only note some aspects:

- If more than three players are involved, we have to take into account their powers of influence if they find themselves in the minority during the decision-making. In our case, we used a negative payout component instead of decreasing the power of influence.
- Under different parameters the tendency towards orthodoxy usually wins, which can also be understood as group proving loyalty and becoming convinced of it.
- The analysis of decision-making of the type stated above shows certain similar attributes to what is being examined within the redistribution systems theory. This suggests that presumably there exists a more general model, of which the cases handled by the redistribution systems theory, the case that we have just dealt with, and probably other cases as well are specific cases.

Figure 3: Schema describing a game between a certain subject and a structure



Source: Created by the author.

Worth mentioning is also the possibility of expanding the conflict beyond the given structure that is based on mutual covering-up, as this structure is weakened by the conflict, of which other structures that compete with it in the given social space could take advantage and weaken its position or even eliminate it. On the other hand, by doing this they could also create a precedent for their own players who are pondering the idea of leaving the structure. That is why the decision-making of the structure's core does not have to be unanimous, and also in this case one can assume a certain tendency towards orthodoxy. Moreover, individual structures that are based on mutual covering-up can be mutually penetrated by cross-coalitions, i.e., coalitions that form among various structures that are based on mutual covering-up.

Conclusions and an Outline of Future Research Directions

A number of conclusions as well as future research directions ensue from the presented results. Let us present the most important ones:

1. When analyzing what is taking place in society, it is good to constantly clarify the notion that is based on differentiating what "is visible" and what "is not visible" (i.e., remains hidden and keeps hiding)
2. Analysis of what can be seen enables us to reveal (identify and analyze) more and more layers of what was originally not visible.
3. Tools from the redistribution systems theory can be used to model and analyze what can be seen.
4. When modeling and analyzing what is hiding, the concept of structures that are based on mutual covering-up of the breaching of rules and generally accepted principles – which also includes the concept of this phenomenon and tools offered by game theory – proves to be very important.
5. The palette of instruments provided by game theory for analysis of what can be seen, as well as of what cannot be seen immediately, is very rich.
6. An important part of research in this particular area is moving from partial concepts to an integrated consistent theory that relies on a mathematical apparatus.
7. For most tasks it is not possible to immediately use the existing game theory tools because these were usually developed for another purpose; however, some time-tested approaches and means of this theory can be modified and applied to this area.
8. The results and experience up until now suggest that the program of expressing social events via mathematical means within the context described above can be successful, and that much more can be accomplished in the given direction than could appear at the first glance.

The progress of our team that deals with the issues mentioned above can be followed "on-line" at www.vsfs.cz/?id=1046, where ongoing results as well as an archive of source materials for individual seminars since October 2003 are continuously available. The modeling of structures that are based on the mutual covering-up of the breaching of rules also has considerable practical importance because, among other reasons, it shows why the results attained so far in the battle against corruption and similar social phenomena are – to put it mildly – unsatisfactory.

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Impacts of Financial Crisis on the Euro Introduction in the Czech Republic

Dopady finanční krize na zavedení eura v České republice

MOJMÍR HELÍSEK

Abstract

This article deals with the issue of how the financial crisis and the economic recession influenced readiness of the Czech Republic to adopt the euro. Deficiency of the public finance has deepened and catch-up of the euro area price level has slowed down. The financial crisis and the recession have therefore complicated adoption of the euro and have delayed it. As the recession goes to its end, fulfilment of both criteria is improving. Besides, the article covers the question whether the financial crisis and the recession have influenced the expected benefits of the euro adoption. The interconnection of the Czech economy with the euro area is examined, as well as the need of a stable exchange rate. The interconnection is strong and increasing. The long-term appreciation of the crown exchange rate reduces competitiveness of Czech exporters. In the case of the euro adoption, the trade relationships would be more stable than with the crown. The weighted variation coefficient expressing volatility of exchange rates showed with the crown existence (during 2007 – 2010) the value of 5.92%, with the crown replaced by the euro it would be only 2.68%.

Keywords

euro, euro area, euro area enlargement, maastricht criteria, nominal and real convergence, exchange rate stability, excessive deficit procedure, exchange rate volatility

Abstrakt

Článek se zabývá otázkou, jak finanční krize a hospodářská recese ovlivnily připravenost české ekonomiky na zavedení eura. Došlo k prohloubení deficitu veřejných financí a ke zpomalení v dohánění cenové hladiny eurozóny. Finanční krize a recese tak přijetí eura zkomplikovala a oddálila. Po odeznění recese se plnění obou kritérií zlepšuje. Dále je zkoumána otázka, zda finanční krize a recese ovlivnily očekávané přínosy zavedení eura. Zkoumána je propojenost české ekonomiky s eurozónou a potřeba stabilního měnového kurzu. Propojenost je vysoká a rostoucí. Dlouhodobá apreciace kurzu koruny oslabuje konkurenceschopnost českých exportérů. V případě zavedení eura by obchodní vztahy byly stabilnější, než v případě existence koruny. Vážený variační koeficient, vyjadřující volatilitu měnových kurzů, vykázal v případě existence koruny (v letech 2007 – 2010) hodnotu 5,92 %, v případě nahrazení koruny eurem by to bylo pouze 2,68 %.

Klíčová slova
euro, eurozóna, rozšíření eurozóny, maastrichtská kritéria, nominální a reálná konvergence, stabilita měnového kurzu, procedura při nadměrném schodku, volatilita měnového kurzu

JEL Codes
E 52, F 36

Introduction[1]

The Czech Republic does not yet have the defined date on which it would like to adopt the euro. The original date of 1.1.2010 was cancelled in October 2006, without specification of a new date. Either the present central-right coalition cabinet from August 2010 does not intent to set the date of the euro adoption. The so called Coalition Agreement of July 2010 states: "In light of the current situation, we will not set a date for adoption of the euro at this stage. [...] If the single European currency evolves as a meaningful and sustainable project, we will prepare for the introduction of the euro in the Czech Republic."[2]

So far the last rejecting standpoint of the Government on the date of the euro adoption is reasoned in particular with impacts of the vanishing financial crisis and economic recession, specifically with (December 2010):[3]

- domestic economic problems like worsening condition of the public finance, interruption of convergence of the domestic price level with prices in the euro area, not improving structural characteristics of the labour markets;
- fiscal problems of a number of the euro area countries leading to uncertainty in international financial markets, fears of investors, potential reversals in flows of short-term capital and endangered stability of the crown if incorporated into ERM II.

The Government confirmed its rejecting standpoint also in the statement of the Prime Minister Petr Nečas in May 2011. More suitable than the euro is to have an independent currency with a flexible exchange rate. [4] President of the Czech Republic Václav Klaus even addressed the government in the autumn 2010 with a proposal to negotiate for the Czech Republic an exception regarding the euro similar to the exception of Great Britain or Denmark (opt-out), which was, however, rejected by the Prime Minister. [5] Also the position of the Czech National Bank to adoption of the euro before long expressed by the opinion of

1 The article is part of the research project No 7720/2010-2011 supported by the Internal Grant Agency of the Financial and Administration University. Diana Bílková participated in preparation of statistic inputs. The author thanks for valuable comments also to both anonymous reviewers.

2 COALITION AGREEMENT on the Formation of a Coalition of Budgetary Accountability, 2010, p. 44.

3 ASSESSMENT OF THE FULFILMENT of the Maastricht Convergence Criteria and the Degree of Economic Alignment of the Czech Republic with the Euro Area, 2010, p. 4 – 6.

4 It was at the European Economic Congress in Katowice. (http://www.financninoviny.cz/tisk_clanku_view.php?id=638238&BACK=/eu/zpravy/necas-rozhodnuti-o-prijeti-eura-bude-ekonomicke-ne-politicke/638238)

5 http://www.financninoviny.cz/zpravy/vyjednat-s-eu-vyjimku-na-euro-by-slo-podle-necase-tezko/561886

its representative Miroslav Singer upon his takeover of the position of the bank's Governor in June 2010, is unambiguously negative. The reason for that is deterioration of the budget position of the Czech Republic. [6]

The Czech Republic is not any exception with its decision to postpone the originally planned deadline for the euro adoption among the EU member states which have not yet adopted the euro (Table 1).

Table 1: Planned date for the enlargement of the euro area

Country	Original date	New date
Bulgaria	not determined	---
Czech Republic	1.1.2010; annulled on 25.10.2006	Not determined
Estonia	1.1.2007; 1.1.2008 (annulled on 31.10.2006)	1.1.2011
Latvia	1.1.2008; annulled in spring of 2006	1.1.2014
Lithuania	1.1.2007; Commission did not recommend the euro introduction (16.5.2006)	As soon as possible
Hungary	1.1.2010; annulled on 1.12.2006	Not determined
Poland	1.1.2012; annulled in the late 2009	Not determined
Romania	1. 1. 2015	---
Sweden	not determined (rejected in a referendum on 14.9.2003)	---
Great Britain, Denmark	permanent opt-out clause in third stage of EMU	---

Sources: Commission of the EC: Report on the Practical Preparations for the Future Enlargement of the Euro Area. 2004-2010.
Note: EMU = Economic and monetary union.

Adoption of the single European currency instead of the existing national currency is, however, a commitment resulting from the membership of the Czech Republic in the European Union.

The objective of this article is to answer two questions. First, how is readiness of the Czech economy for the euro adoption developing? Did the financial crisis and the following economic recession in 2009 have an impact on the conditions influencing adoption of the euro in the Czech Republic? We will consider this question by assessment of fulfilment of the criteria of the nominal and real convergence. Second, what are the expected benefits from introduction of the euro? Were those benefits influenced by the financial crisis and the economic recession? We will consider this issue from the point of view of development of the interconnection of the Czech economy with the economy of the euro area (international trade, direct foreign investments). This is followed by an analysis whether an independent national currency (the Czech crown) is more suitable than the single cur-

6 http://www.financninoviny.cz/zpravy/klaus-jmenoval-guvernerem-cnb-miroslava-singera/492769&id_seznam=6372

rency (the euro) regarding development of exchange rates of both currencies. To express volatility of exchange rates, we have used standard deviations and variation coefficients.

The mentioned objectives are reflected also in the structure of the article: first, development of the nominal and real convergence is treated, then the interconnection of the Czech economy with the euro area is covered, and finally the stability of exchange rates.

The article is based on the existing publications dealing with accession of the Czech Republic and other CEE countries into the currency union, namely Helísek et al. (2007, 2009), Lacina – Rozmahel et al. (2010), Kučerová (2005) and others. It takes over the results of the analysis *Assessment of the Fulfilment of the Maastricht Convergence Criteria* (2008, 2010) and of analyses of the International Monetary Fund about impacts of the single currency on the economic growth (Schadler et al.). General basis of the theory of monetary integration is drawn namely from De Grauwe (2005) and Lacina – Rusek et al. (2007).

1 Nominal and Real Convergence

Criteria of nominal convergence

The criteria are usually identified as the Maastricht convergence criteria. Those include four criteria which must be fulfilled simultaneously and at the same time sustainably, i.e. not only as short-term at the expense of extraordinary measures.

Criterion of price stability is defined by the average inflation rate in three countries with the best results in the field of price stability (plus 1.5 p. p.). This requirement of low inflation is based on the unified monetary policy for the whole euro area. Fulfilment of the criterion of price stability in the Czech Republic is described in Table 2 (harmonized index of consumption prices, year average).

Table 2: Price stability criterion in the Czech Republic

	2007	2008	2009	2010	2011	2012	2013
Inflation in 3 countries	1.3	2.6	0.0	0.7	1.2	1.2	1.2
Criterion	2.8	4.1	1.5	2.2	2.7	2.7	2.7
Czech Republic	3.0	6.3	0.6	1.4	2.3	1.7	1.7

Source: Assessment (2010), s. 9.
Notes: 2010 – 2013 outlook. Forecast for the Czech Republic is from Macroeconomic Forecast. Czech Republic. (July 2010), forecast for European Union is from Economic Forecast. European Commission (Spring 2010).

The inflation criterion was not fulfilled in 2007 and namely in 2008. It was caused in particular by a high increase in prices of energetic raw materials, increased regulated rent, increase in VAT rate from 5 % to 9 %, introduction of fees in health care area and increase in excise taxes on cigarettes. *Convergence Programme of the Czech Republic* assessed this increased inflation in 2008 as "a temporary and one-off event".

Fulfilment of the price stability criterion in the coming years is, however, forecasted to be trouble free. This optimistic prognosis is fortified by the fact that the Czech National Bank moved from the beginning of 2010 to the inflation target lower by 1 p. p. compared to the preceding period (from 3 % to 2 %, in compliance with the inflation target of the European Central Bank – ECB), with tolerance of 1 p. p. in both directions.

The criterion of feasibility of the public finance should create sufficient space for fiscal expansion in the case when the universal monetary policy of ECB does not suit a specific country, in particular therefore in impacts of asymmetric shocks. The criterion is defined as max. 3 % of the deficit of the public finance in proportion to GDP and max. 60 % of the public debt in proportion to GDP. [7]

Development of this criterion in the Czech Republic is shown in Tables 3A, 3B.

According to the prognosis of late 2008, both parts of the fiscal criterion should be most probably fulfilled within several years. At that time, favourable development in this field was suggested (together with the so far favourable development of the real economy) also by the fact that in June 2008, the procedure on an excessive deficiency was terminated, which had been maintained by the Czech Republic since 2004. From this point of view, proposals to try the euro adoption in 2012 were justified.

Table 3A: The criterion of feasibility of the public finance in the Czech Republic (Assessement 2008)

	2005	2006	2007	2008	2009	2010	2011
Balance of public finance system (in % to GDP)							
Criterion	-3.0	- 3.0	- 3.0	- 3.0	- 3.0	- 3.0	-3.0
Czech Republic	-3.6	-2.7	- 1.0	- 1.2	- 1.6	- 1.5	- 1.2
Public debt (in % to GDP)							
Criterion	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Czech Republic	29.8	29.6	28.9	28.8	27.9	26.8	25.5

Source: Assessment (2008), p. 11 – 12.
Notes: 2008 – 2011 forecast (note, that the evaluation is from 2008).

The economic recession and the needed reform of the public finance, however, strongly impaired those forecasts as to the deficit of the system of public finance. The Government of the Czech Republic estimates fulfilment of this criterion only in 2013.

7 *The value 3 % was derived from the then proportion of 3 % of the public investments in GDP in Germany (so called golden rule, i.e. deficit should origin only as a result of funding from public investment expenses). 60 % was the average value of the public debt at the time of creation of the Maastricht convergence criteria (see BALDWIN, R.; WYPLOSZ, CH., The Economics of European Integration, 2006, p. 382).*

Table 3B: The criterion of feasibility of the public finance in the Czech Republic (Assessement 2010)

	2007	2008	2009	2010	2011	2012	2013
Balance of public finance system (in % to GDP)							
Criterion	-3.0	- 3.0	- 3.0	- 3.0	- 3.0	- 3.0	-3.0
Czech Republic	- 0.7	- 2.7	- 5.8	- 5.1	- 4.6	-3.5	-2.9
Public debt (in % to GDP)							
Criterion	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Czech Republic	29.0	30.0	35.3	39.3	42.1	42.9	43.3

Source: Assessment (2010), p. 11 – 12.
Notes: 2010 – 2013 outlook.

The criterion of the public debt is fulfilled even if the proportion of the debt to GDP quickly increases. According to the programme announcement of the Government, however, a balanced budget should be achieved in 2016 and the public debt should therefore start decreasing. This is one of the five main tasks set by the Government.[8]

The criterion of exchange rate stability requests at least two-year duration of the involved currency in the exchange rates mechanism ERM II with maintaining of so called normal fluctuation range without devaluation of the central parity towards the euro. While the exchange rate must not face so called severe tensions. The reason for this criterion is to undergo a "trial period" of a fix exchange rate (after the euro introduction, factors will develop influencing the export ability by depreciation, etc.) and for a long run to anchor exchange rate expectations.

For the time being, the Czech crown is not incorporated into ERM II mechanism, fulfilment of the exchange rate criterion can therefore be only simulated.[9] For the simulation, we will use the attitude of the European Central Bank which uses as the hypothetic central parity the average monthly exchange rate of the first month of the examined two-year period. In our procedure, we will take as the hypothetic two-year assessment period of staying in ERM II the two-year period prior to the outbreak of the financial crisis; this for the reason of elimination of this extraordinary factor. As the "milestone" of the transition of the mortgage crisis into the financial crisis, the failure of the American investment bank Lehman Brothers on September 17, 2008 is usually considered. The examined period therefore covers the months IX 2006 – VIII 2008. The hypothetic central parity is 28.38 CZK/EUR (in compliance with the above mentioned procedure of ECB). We will interpret the fluctuation range asymmetrically, 15 % in the appreciation direction (= 24.12 CZK/EUR) and 2.25 % in the depreciation direction (= 29.02 CZK/EUR).

The reason for application of this asymmetric fluctuation range is the fact that this range is monitored by European Commission in its Convergence Reports. While it is not excluded

8 *GOVERNMENT'S PROGRAMME ANNOUNCEMENT, 2010, p. 4.*

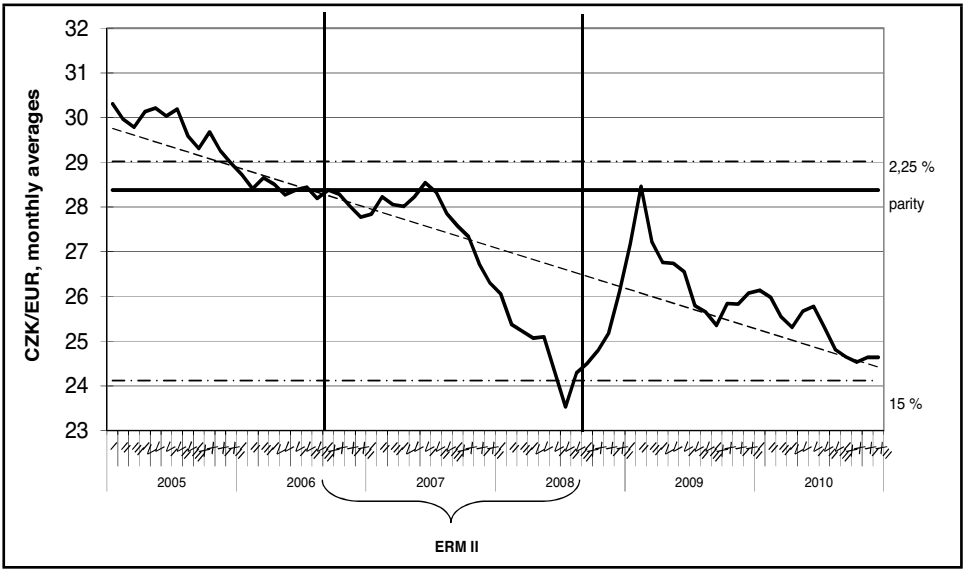
9 *The Czech National Bank (CNB) uses a different method for simulation. It takes adoption of the euro hypothetically on 1.1.2011 and the monitored period of 24 months in ERM II therefore starts in the second quarter 2008. The central parity is, in CNB method, the average exchange rate in the first quarter 2008.*

that the reason for a failure to meet the criterion of exchange rate stability included movements under the 15 % limit (i.e. exceeding of the appreciation limit). [10] ECB (implicitly) tolerates fluctuation in a wider range of 15% in both directions.

During the examined period, the exchange rate showed a clear instability (see Figure 1):

- its very slight fluctuation (not reaching the limits of the range) in the first half-year was followed by a strong appreciation with a slight exceeding of the appreciation limit of the fluctuation range in July 2008 (by 0.6 CZK/EUR),
- then followed depreciation which however did not reach the range limit, not only during the remaining month of the monitored period but also in the whole following period.

Figure 1: Exchange rate CZK/EUR development



Source: http://www.cnb.cz/cs/financni_trhy/devizovy_trh/kurzy_devizoveho_trhu/prumerne_form.jsp. Own preparation.

The only slight exceeding of the fluctuation range allows the conclusion on fulfilment of the criterion of exchange rate stability in this hypothetic assessment (during the first wave of the euro area member states, the Commission was tolerant to much higher and longer

10 *The fluctuation range 2.25% in both directions from mutual parity of countries included in former ERM was cancelled as a result of the currency crisis in 1993. The Commission, however, continues application of the narrower range in assessment with the following arguments: the Maastricht criteria were designed at the time when the narrow range was considered as normal; the broader range is not in fact the exchange rate stability; extension of the range was announced as temporary; the reason for extension was to confront speculations (in 1993), not to enable a higher variability of exchange rates (and therefore to mitigate the criterion – the author's note). For more details see HELÍSEK, M., et al., Vstup ČR do eurozóny, ERM II a kurzové konvergenční kritérium, 2011, p. 11 – 12.*

deviations, this even in the depreciation direction). Besides, in the monitored period, so called severe tensions were not monitored which are expressed in particular in a strong decrease in FX reserves or in a strong increase in interest rates compared to the interest rates in the euro area (Table 4).

Table 4: Indicatores of „severe tensions" in crown exchange rate development (2006 – 2008)

Quarter	Interest rate differential (p. p.)	Change of FX reservs (%)
2006 IV	- 1.0	- 4.6
2007 I	- 1.2	- 3.3
II	- 1.3	- 2.9
III	- 1.2	- 4.5
IV	- 0.9	- 0.8
2008 I	- 0.5	0.8
II	- 0.7	4.3
III	- 1.1	9.5

Sources: www.cnb.cz (finanční trhy - peněžní trh - PRIBOR; statistika platební bilance – devizové rezervy ČNB); www.sdw.ecb.europa.eu (Statistical Data). Own calculations.
Notes: Interest rate differential is difference between 3 M PRIBOR and 3 M EURIBOR (always expressed in quarterly averages); change in foreign exchange reserves of ČNB is an annual percentage change in the state of reserves at the end of quarter (reserves are expressed in EUR).

Criterion of low long-term interest rates means in other words the requirement of low long-term expected inflation rate, reflected by markets expectations into low nominal interest rate. This rate should not exceed by more than 2 p. p. the average of interest rates of three countries with the best results in the field of price stability. Fulfilment of this criterion is shown in Table 5, using ten-year government bonds traded on the secondary market (12-month averages).

Table 5: Criterion of long-term interest rates in the Czech Republic

	2007	2008	2009	2010	2011	2012	2013
Average in 3 countries	4.4	4.2	3.9	4.3	4.8	4.8	4.8
Criterion	6.4	6.2	5.9	6.3	6.8	6.8	6.8
Czech Republic	4.3	4.6	4.8	3.7	3.9	3.9	3.9

Sources: Assessment (2010) p. 16.
Notes: 2010 – 2013 outlook.

The criterion of long-term interest rates is fulfilled by the Czech Republic without problems and the same conclusion can be made also for the coming period. Maintaining of the positive forecast of rating agencies, in the interest of domestic, as well as foreign investors, and therefore low earnings on those bonds should be contributed by the Government reforms in the field of public finance expressed in the above mentioned Government programme.

Criteria of real convergence

Implementation of the single currency will mean a loss of separate national monetary and exchange rate policy. Economy of a new member of the monetary union should therefore be similar to the entire economy of the monetary union. For that integrated economy, a unified monetary policy of the central bank of the monetary union will be suitable, as well as other economic rules set as unified for the whole monetary union. Similar economic development and economic structure of individual members of the monetary union also reduces the risk of occurrence of so called asymmetric shocks, i.e. events impairing member countries of the monetary union in a different way. [11]

Similarity (harmonization) of economic development is achieved not only by nominal, but also by real convergence. It is expressed in particular by the following indicators:

1. Convergence of economic level leading to convergence of the expense, as well as costs side of the economy and contributing thereby to harmonization of business cycles.
2. Convergence of price levels is important regarding to development of inflation. In the case of high difference of price levels, there is a danger of a spontaneous catch up of the low price level of the accessing member with the price level of the euro area.
3. Harmonization of business cycles which is in compliance with the unified monetary policy of the central bank of the monetary union.

Comparison of the economic level and price level of the accessing country with indicators of the euro area is shown in Table 6. The economic level (GDP per capita, PPS) of the Czech Republic exceeds at present the comparable countries. The price convergence (comparative price level expressed in prices of the final consumption of households) still achieves poorer results.

Table 6: Real convergence one year before joining (in % of euro are 16)

	Slovakia 2008	Portugal 1998	Greece 2000	Czech Republic	
				2009	2010
Economic level	66.1	69.6	74.3	75.2	74.1
Price level	67.2	82.2	84.6	66.0	69.0

Source: http://epp.eurostat.ec.europa.eu (National accounts, Comparative price levels – Purchasing Power Parities). The number of euro area member states: 16 (from 2009). Own calculation.

Considering the long-term similarity of inflation rate in the Czech Republic and in the euro area, it is possible to expect convergence of price levels mostly through appreciation of the nominal (and therefore real) exchange rate. This also explains the temporary worsening of the development in 2009 with depreciation of the crown exchange rate (in

11 The asymmetry consists either of different occurrence of shocks (only some countries of the monetary union are affected) or of different intensity of impact on individual countries.

2008 the price level towards the euro area was 69.7%). The Czech National Bank anticipates in next five years appreciation of the real exchange rate of the crown to the euro 2.0 – 3.4% a year.[12]

Also in the indicator of business cycle harmonizing of the Czech Republic with the euro area we can see a simultaneous course of the same cyclic phases, both recession, and expansion (Table 7). This cyclic harmonizing was strongly influenced by the recent economic recession. The following development (2010, 2011) does not show so distinct concord, the cycle phases, however, remain unambiguously identical. [13]

Table 7: GDP develpoment (fixed prices, year-to-year changes, in %)

	2008	2009				2010				2011
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
euro area (12)	0.4	-5.0	-4.9	-4.0	-2.0	0.8	1.9	1.9	2.1	1.5
Czech Republic	2.5	-3.6	-4.7	-4.4	-3.2	1.0	2.3	2.8	3.5	2.0

Source: Macroeconomic Forecast of the CR. October 2010, p. 8, 9 (for quaterly data 2009); January 2011, p. 4, 8.
Notes: 2010 estimate, 2011 outlook. Annual data (euro area and Czech Republic) for 2009: -4.1 % and -4.1 %; for 2010: 1.7 % and 2.2 %. Euro area includes first 12 member countries of monetary union.

The overall assessment of development of the economic readiness of the Czech Republic for the euro adoption can be summarized as follows:

- the Czech Republic meets the nominal convergence criteria, with the exception of the deficit of the public finance;
- also the main real convergence criteria develop positively, with the exception of catch up with the euro area price level.

In both unfavourable indicators, the *impact of the economic recession can be seen*. As to the deficit of public finance, it was caused by a drop in the income and increase in the expenses of public budgets. As to the price level, it involved lack of confidence of investors in CEE currencies and depreciation of the crown rate in 2009. *Upon last traces of the recession, both of the indicators improved* (reduction of the deficit of public finance, return to the trend of appreciation of the exchange rate).

12 *ASSESSMENT OF THE FULFILMENT of the Maastricht Convergence Criteria and the Degree of Economic Alignment of the Czech Republic with the Euro Area, 2010, p. 18.*

13 *ASSESSMENT OF THE FULFILMENT of the Maastricht Convergence Criteria and the Degree of Economic Alignment of the Czech Republic with the Euro Area, 2010, assesses this harmonizing that "this reflects the recent extreme global developments and has probably not increased the probability of greater future alignment of the business cycle in normal global economic conditions", p. 5.*

2 Anticipated Benefits from the Euro Adoption

The immediate benefit of the single currency adoption will be namely the stimulation effect on the foreign trade and on inflow of foreign direct investments (FDI). Besides, the possible influence of the euro adoption on decrease in interest rates and subsequently on investment expenses.

Utilization of the euro instead of the existing national currency brings about two changes in foreign trade (within trade with the euro area): [14]

- extinction of some transaction costs,
- extinction of the costs related with exchange rates risks.

Stimulation of foreign trade leads to an increased specialization, improvement of the principle of comparative advantages, more efficient allocation of production sources, increased productivity and stimulation of economic growth.

In this review it is possible to add that these are only the basic relationships. Ambiguous might be for example influence of increased specialisation of national economies. The economies can be more frequently and strongly affected by asymmetric shocks than economies with a similar production structure. [15] If the asymmetric shocks are frequent and strong the single currency with the unified monetary and exchange rate policy cannot be beneficial.

Implementation of the single currency also positively influences inflow of FDI through extinction of exchange rates risk:

- through stimulation of trade (export) competitiveness increases and FDI into the country, which is a member of the euro area, are becoming more attractive,
- besides, there is also FDI inflow from other economies non-members of the euro area if rating of the accessing country increases with its membership in the monetary union.

Influence of all three transmission channels (including hypothetic influence of the euro adoption on decreased interest rates) on GDP growth is expressed in Figure 2.

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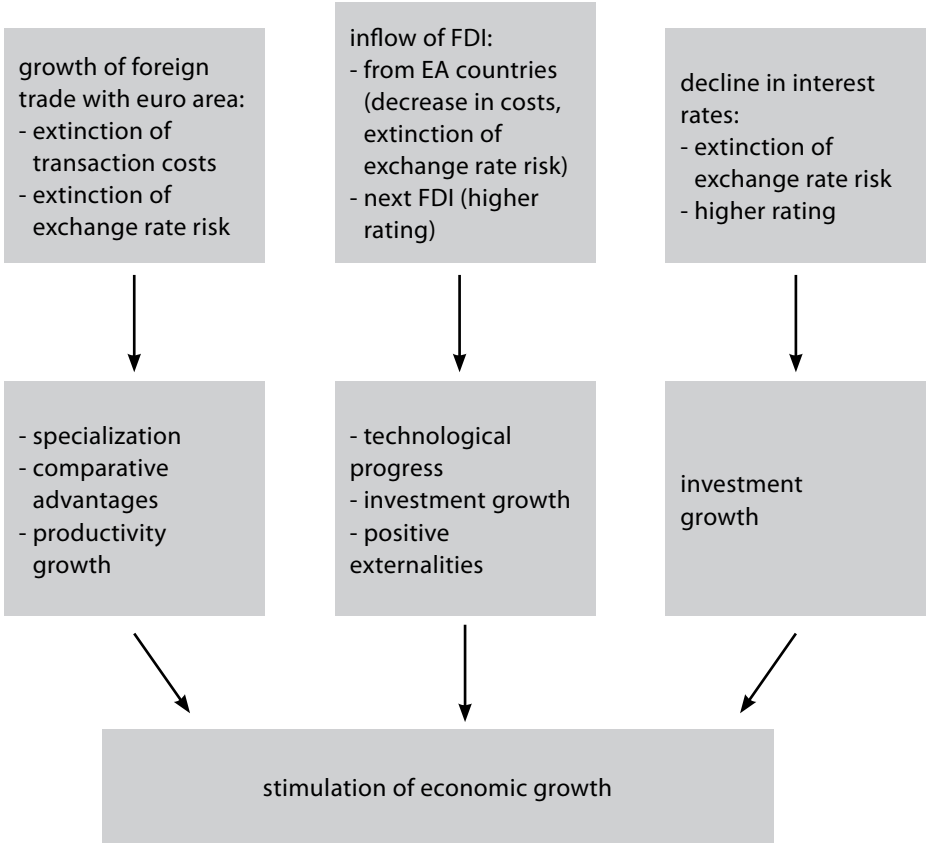
14 See for example DE GRAUWE, P., Economics of Monetary Union, 2005, p. 80. Generally for benefits and costs of the joint currency see e.g. LACINA, L.; ROZMAHEL, P., et al., Euro: ano – ne?, 2010, more generally e.g. KUČEROVÁ, Z., Teorie optimální měnové oblasti a možnosti její aplikace na země střední a východní Evropy, 2005.

15 This fact was pointed out by P. Krugman. In his opinion, trade integration between members of the monetary union leads to regional concentration of production (so called concentration and agglomeration effect) which results in specialization of national economies. That specialization then increases the risk of asymmetric shocks. The risk, however, can be mitigated if the regional concentration of production exceeds national borders. These issues are covered e.g. by DE GRAUWE, P., Economics of Monetary Union, 2005, p. 24 – 27.

Figure 2: Euro and economic growth



Source: own creation.
Notice: EA = euro area.

According to the study of the European Commission *EMU@10: successes and challenges after 10 years of Economic and Monetary Union* [16] the single currency had the following benefits for the member countries of the monetary union:

- mutual trade of the euro area members has increased during the past 10 years from one quarter to one third of GDP; one half of this trade growth is attributed to removal of exchange rates risk and lower costs,
- increased FDIs inside the euro area from one fifth to one third of GDP; two thirds of this FDIs increase are attributed to introduction of the euro.

The same impacts can be expected also for replacement of the Czech crown with the euro.

16 COMMISSION OF THE EC, 2008, p. 4.

The study of the International Monetary Fund, collective of authors under S. Schadler, qualifies the aggregate impact of the euro introduction on economic growth in central and east European countries as 2 – 7 % increase in GDP during 20 years (with the exception of Poland where it is 1 – 3 %). [17]

Benefit of the single currency increases together with the increasing interconnection of the accessing country economy with the present countries of the monetary union. Interconnection of the Czech economy with the euro area countries is provided in Table 8 where not only a high, but also an increasing link with the euro area can be seen.

Table 8: Interconnection of the Czech Republic with the euro area

Export + import (goods and services)		
	2004 (EA 12)	2009 (EA 16)
Total (billions CZK)*	3 939.3	4 825.7
With EA (billions CZK)	2 284.0	3 056.8
% with EA	58.0	63.3
FDI in the Czech Republic (stand end of year)		
	2004 (EA 12)	2009 (EA 16)
Total (billions CZK)	1 280.6	2 241.5
From EA(billions CZK)	1 017.6	1 886.7
% from EA	79.5	84.2

Sources:http://www.cnb.cz/cs/statistika/platebni_bilance_stat/ Own calculations.
*Notes: * community principle. State of FDI at the end of 2009 was calculated by adding the flows quantites from 2009 to the state of FDI at the end of 2008. EA = euro area in composition according to the current situation in these years.*

Adoption of the euro is, of course, linked also with certain costs and risks which can be divided into four groups: [18]

- loss of autonomous monetary and exchange rates policy which results in the need to achieve high nominal and real convergence of the Czech Republic with the euro area;
- imminent growth of price level linked with e.g. rounding up of prices (it is, however, rather an issue of so-called perceived inflation than a real inflation increase);
- administrative and technical costs of the transition to the euro like re-pricing costs, software setup, training of employees, etc. (costs carries by companies themselves);
- specific costs in the banking sector, both of the central bank (production and change of new cash), as well as commercial banks (decreased income from foreign exchange transactions).

17 SCHADLER, S., et al., Adopting the Euro in Central Europe, 2005, p. 15. For the Czech Republic, the mentioned interval 2 – 7 % is applicable.

18 LACINA, L.; ROZMAHEL, P., et al., Euro: ano – ne?, 2010, p. 45 and following. Risks are similarly described already in The Czech Republic's Euro-area Accession Strategy, 2003.

3 Stability of Exchange Rates

Can it be expected that the single European currency will bring about a higher stability in relationships of the Czech economy with foreign countries?

The strategic document of the European Commission *Europe 2020* which searches outcome from the financial crisis and economic recession and lessons from them attributes in this context great importance to the single currency: "The common currency has acted as a valuable shield from exchange rate turbulences for those Member States whose currency is the euro." [19]

Similarly, also the International Monetary Fund, specifically its former General Director D. Strauss-Kahn, expresses the stabilizing impact of the euro:

- although the exchange rate of the euro towards the dollar is also sometimes subject to stronger variations they, however, by far do not reach the intensity of currency crises which (implicitly expressed) could happen in the case of separate national currencies;
- instead of appreciation of the euro, there would be appreciation of the German mark which would, however, be much stronger; political and business pressure would follow on devaluation of currencies linked to the mark;
- possible changes in parities would lead to withdrawal of capital from those risky countries, followed by an increase of the risk premiums and interest rates and slowing down of the economic growth;
- performed devaluations would be followed by inflation pressures.

"So there is no question that the euro has contributed to the stability of its member countries during this crisis." [20]

Can we document these conclusions about the stabilizing impact of the euro by empiric evidence? We will treat this question by assessment of volatility of exchange rates as follows:

- exchange rate CZK/EUR which has the decisive influence on the foreign trade of the Czech Republic;
- exchange rate USD/EUR which is the decisive exchange rate for the euro area countries.

Table 9 expresses the standard deviation of the exchange rates, i.e. the spread of the exchange rate (quadratic average of deviations of individual values from their arithmetic average) in individual months of the specific monitored period (in currency units) and the variation coefficient, i.e. the ratio of the standard deviation to the arithmetic average of the exchange rate during the same period (in %).

19 COMMISSION OF THE EC, 2010, p. 24.

20 STRAUSS-KAHN, D., The Euro at 10: the Next Global Currency?, 2008, p. 3 – 4.

Table 9: Volatility of exchange rates CZK/EUR and USD/EUR

Period	Standard deviation CZK/EUR	Variation coefficient (%)
- pre-crisis	1.421	5.48
- crisis period	0.973	3.73
- subsequent period	0.554	2.20
whole period	1.120	4.34
Period	**Standard deviation USD/EUR**	**Variation coefficient (%)**
- pre-crisis	0.072	4.89
- crisis period	0.071	5.11
- subsequent period	0.115	8.52
whole period	0.102	7.24

Source: CZK/EUR: http://www.cnb.cz/cs/financni_trhy/devizovy_trh/kurzy_devizoveho_trhu/index.html.
USD/EUR: http://epp.eurostat.ec.europa.eu/portal/page/portal/exchange_rates/data/database
Own calculations.

There are three examined periods:

- 12 months of the pre-crisis period from September 2007 to August 2008,
- the crisis period from September 2008 to the end of 2009 (16 months),
- the following period (12 months of 2010).

The table shows various volatility of exchange rates in individual periods; surprisingly the rates do not have the highest volatility during the crisis (this applies also to the rate CZK/USD – see below). Besides, we can see almost double volatility measured by the variation coefficient of USD/EUR (7.24 %) compared to CZK/EUR (4.34 %) for the whole monitored period of 40 months, except for the pre-crisis period. The foreign trade of the euro area members with third countries (rate USD/EUR) was therefore subject to a higher instability than the foreign trade of the Czech Republic (with an independent currency – the crown – exchange rate CZK/EUR) with the euro rea countries.

This conclusion must, however, be detailed:

- into the foreign trade of Czech exporters, the long-term trend of the crown appreciation is unfavourably reflected (see Figure 1) which weakens competitiveness of Czech exporters, [21]

21 Experience of exporters is presented in the opinion of the largest Czech exporter, Škoda Auto in Mladá Boleslav: "The present value of the Czech crown does not correspond the strength of our economy. It is drawn up by speculations on financial markets. The appreciation has a negative impact on exporters; for Škoda Auto, an appreciation by 1 crown results in a loss of around one billion crowns." (Radek Špicar, Hospodářské noviny 19. 1. 2011). Available on http://byznys.ihned.cz/c1-49507610-firmy-uz-se-naucily-zit-se-silnou-korunou-presto-vyvoj-sleduji-s-obavami.

- even with the relatively low volatility of the exchange rate, there is still the risk of lost confidence of investors and "escape" from the crown which can develop into a currency crisis. Such mistrust towards the crown was reflected in the deterioration of the exchange rate in the period July 2008 – February 2009 of 28.3 % (see Figure 1). In the case of the single currency with a strong proportion in the turnover of the global foreign exchange market, the currency crisis is very improbable.

The financial crisis and the related increased volatility of exchange rates increased the mistrust towards the currency of our small open economy. This is contributed also by so called regional viewpoint of investors which views a priori "with suspicion" the economic development of central and eastern European countries. Regardless appreciation of the crown, forint, as well as of zloty (since the middle of February 2009), mistrust of investors towards that region has survived. According to analysts of the American investment bank Merrill Lynch, a number of central and eastern European countries' currencies might have been hit by the crisis: "For a number of currencies, a fully fledged crisis may not be ruled out given the sharp moves of the recent days that suggest plummeting investor confidence. There is no single currency for which the near-term outlook is positive in the region." [22]

This viewpoint of investors was not even influenced by a statement of central banks of six countries (Czech Republic, Slovak Republic, Hungary, Poland, Bulgaria, Romania) a few days before that as to simplified and misleading information about their economies. Namely the fact was stressed that each country has its specific economic situation and it is not a homogenous region. Moreover, investors should differentiate among the EU member countries and non-member countries. [23]

The above mentioned analysis of impacts of exchange rates on stability of foreign trade relationships is followed by simulation of replacement of the crown with the euro and we will compare that stability with the real situation, i.e. with the actual existence of the Czech crown.

Let us suppose for simplification, that all business transactions with the euro area countries are carried out in the euro and all remaining transactions are carried out in American dollars. The proportion of transactions in these two currencies is seen in Table 8 (63.3 % and 36.7 %). Volatility of the rate CZK/USD is expressed in Table 10.

Table 10: Volatility of exchange rate CZK/USD

Period	Standard deviation CZK/USD	Variation coefficient (%)
- pre-crisis	1.454	8.50
- crisis period	1.459	7.69
- subsequent period	0.932	4.88
whole period	1.588	8.61

Source: own calculations.

22 Bloomberg, Eastern European Currencies Close to Crisis, Merrill Lynch Says, 2009.

23 COMMON POSITION OF CEBS MEMBERS, 2009.

We will evaluate the conditions of exchange rate stability of the foreign trade in two examined situations, this using the weighted variation coefficient:

1. with the crown existence: exchange rates CZK/EUR were used (variability 4.34 % weighted 0.63) and CZK/USD (variability 8.61 % weighted 0.37),
2. after replacement of the crown by the euro: exchange rates EUR/EUR were used (variability 0.00 % weighted 0.63) and EUR/USD (variability 7.24 % weighted 0.37).

Having considered the proven absence of mutual relationships in stability of exchange rates in individual periods (pre-crisis, crisis and subsequent), we will focus only on the result for the whole examined period.

The result is as follows:

- the weighted variation coefficient had, for trading in EUR and USD, the value of 5.92 %,
- in the case of replacement of the crown by the euro, it was only 2.68 %.

The examined period was therefore linked with a 2.2 times higher variability of exchange rates than in the hypothetic non-existence of the crown.

Conclusions

The Czech Republic has already performed a number of legislative and organizational preparation measures for the euro adoption. In October 2003, *The Czech Republic's Euro-area Accession Strategy* was adopted which was updated in August 2007. National Coordination Group for the Introduction of the Euro was established with the Finance Ministry in 2005 with six permanent working groups. In October 2006, the Government approved the C*hoice of the Scenario for the Euro Adoption in the CR* through a big-bang, i.e. a once-off introduction of the cash and non-cash euro. The most important document is *The National Euro Changeover Plan for the Czech Republic*, approved by the Government in April 2007. The response to those steps was appreciation by the European Commission in July 2007. The Czech Republic was marked as a good example of timely preparation even without setting the deadline. [24]

The financial crisis and economic recession complicate the Czech Republic namely fulfilment of the criterion of public finance deficit. On 2.12.2009, the Commission renewed the procedure with the Czech Republic with the excessive deficit. The Commission recommended the yearly reduction of the structural deficit by 1 % GDP and therefore the deficit of 3 % is to be achieved by 2013.[25] In the opposite case, there is a danger of limitation of the inflow of financial resources from the EU funds.

24 COMMISSION OF THE EC. Fifth Report on the Practical Preparations for the Future Enlargement of the Euro Area, 2007, p. 10.

25 EUROPEAN COMMISSION, 2010, technical Annex, p. 41.

Global financial crisis and recession have resulted in some countries in an increasing interest in a fast adoption of the euro. This leads to debates whether to mitigate, in the interest of a fast enlargement of the euro area, the criteria for approval of its enlargement. One expression of such efforts was the proposal of IMF of early April 2009. Mitigation of the criteria for accession of the euro area would be linked with a "quasi" membership in the euro area in such a form that the new member country would not have representation in ECB. [26] The proposal was rejected both by the Commission, and by ECB. ECB commented on the opinions about mitigation of the criteria entirely unambiguously: not only the binding requirements for a high degree of feasible convergence remain valid, but also the convergence criteria will be interpreted and implemented in a strict way. [27]

While there had been lately some discreet efforts to influence the Commission and ECB towards higher tolerance in interpretation of fulfilment of the Maastricht convergence criteria, then the financial crisis, on the contrary, made this interpretation stricter. There is, however, another impending complication. Also such proposals have emerged to complete the existing Maastricht criteria with requirements for monitoring of the quality of the candidate country banking system.[28] Assessed in words of the main economist of European Bank for Reconstruction and Development E. Berglof: the euro area members started to support proposals increasing the requirements for accession the monetary union. [29]

The objective of the Czech Government is, according to its programme announcement, to achieve in 2013 a deficit of the public budgets of 2.9 % and in 2016 to accomplish a balanced budget. Adoption of the euro would, in this context, be real in 2015. Accession of the Czech Republic to the euro area in early 2015 (purely hypothetic for now) would have the following time schedule:

- in spring 2012 submission of the application for ERM II accession,
- ERM II accession on 1. 7. 2012 (min. by the end of June 2014),
- decision of the EU Council about "withdrawal of the exception" in autumn 2014, setting of the conversion coefficient,
- dual marking of prices (one month after the setting of the conversion coefficient until expiry of one year after the euro adoption),
- approximately three-month "preparatory stage" for completion of technical preparations, started production of the euro cash,
- transition to the euro on 1. 1. 2015.

Then a two-week period would follow with a dual circulation of the crown and the euro, withdrawal of the crown cash.

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26 IMF URGES EASTERN EU TO ADOPT EURO, The Financial Times Limited, 2009.

27 Address of a member of the ECB Executive Board Jürgen Stark at the conference on possibility of the euro adoption in Iceland. STARK, J., The adoption of the euro: principles, procedures and criteria, 2008.

28 The proposals were presented at the conference of central bankers organized by ECB on the occasion of 10 years of the euro in Frankfurt in November 2008 (http://www.ecb.int/events/conferences/html/cbc5.en.html).

29 BERGLOF, E., Slamming the Euro Door, 2008.

Adoption of the euro in the Czech Republic is complicated by consequences of the economic recession. Besides, economic problems of Greece, Ireland and some other countries of the euro area have led to discrediting of the single currency, although the currency mostly is not the cause of the problems. Discrediting of the euro influences unfavourably the political climate for the euro adoption.

The Czech economy is, however, strongly linked with the euro area and these mutual links are increasing in the course of time. The financial crisis and the economic recession did not change anything in this fact. The Czech crown exchange rate shows a long-term trend of appreciation towards the euro which reduces competitiveness of Czech exporters. In the case of the euro adoption, moreover, our trade relationships would be more stable than with the crown (expressed by weighted variation coefficient). Besides, the Czech crown is not protected in any way against possible currency crisis. The increasing interconnection of the Czech economy with the euro area economy and the needed stable exchange rate remain the main reason for adoption of the single currency.

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Applicability of Bankruptcy Models at Agricultural Companies

Použitelnost bankrotních modelů na zemědělské podniky

JAN SUŠICKÝ

Abstract

This part will be dedicated to the use of bankruptcy models in the evaluation of agricultural companies. Bankruptcy models are tools used for the evaluation and prediction of future development of companies. Their use is clearly linked to the problems associated with the use of bankruptcy models developed abroad. These models, resulting from different economic circumstances, often had difficulty in actually describing the real situation of companies in the Czech Republic. In this part were used 6 bankruptcy models for the analysis of agricultural companies (Z"-Score, Z-Score, ZETA, IN99, IN01, IN05 and a model created by Taffler and Tisshaw). The most successful models were Z-Score, ZETA and the Czech model IN99. The Czech model IN01 was identified as the least suitable model.

Keywords

model, bankruptcy, ratio indicator, agricultural companies

Abstrakt

Tento příspěvek bude věnován bankrotním modelům, které jsou velmi využívaným nástrojem hodnocení a predikce budoucího vývoje podniků. S jejich využitím jsou bezpochyby spojeny také problémy, související s možností využití modelů vytvořených v zahraničí. Tyto modely, vzniklé za odlišných ekonomických podmínek, mnohdy jen s obtížemi reálně popisují skutečnou situaci podniků v České republice. V tomto příspěvku bylo pro analýzu zemědělských podniků použito 6 bankrotních modelů (Z"-Score, Z-Score, ZETA, IN99, IN01, IN05 a model vytvořený Tafflerem a Tisshawem). Jako nejúspěšnější modely se ukázaly modely Z-Score, ZETA a český model IN99. Jako nejméně vhodný model se ukázal český model IN01.

Klíčová slova

model, bankrot, poměrový ukazatel, zemědělské podniky

Introduction

Financial analysis has recently progressed from one-dimensional models to so-called bankruptcy models (also known as the prediction of financial distress). These methods of financial analysis are the result of efforts to use a single indicator to determine whether a company is financially healthy or not.

One-dimensional models, which are represented by relative indicators, do not affect the company as a whole, but only a certain area. This disadvantage removes multivariate mod-

els that assess the overall situation by the individual ratios which are combined to produce a single value. The resulting figure would be a likely clue to the future development of the company. These models can be divided into two groups.

The first group is defined as credibility models. The result of these models is a rating that reflects the current creditworthiness of a company. This information is used to assess whether the company will be viable in the future or not. The result of these models is the inclusion of the company into one of the groups that characterizes the expected rating of the company. Examples of credibility models are the Grünwald model or the Kralicek Quick Test [1]. The second group consists of bankruptcy models, which aim to predict the impending bankruptcy of the company. An example of bankruptcy model is the Altman Index, written by E.I. Altman, which has been issued in the U.S. in a few modifications. In the Czech Republic, bankruptcy models were also developed based on economic conditions in the Czech Republic. The most popular are the IN Indexes created by Inka and Ivan Neumaier [6].

Bankruptcy models, which were generated abroad, and based on other business conditions, often do not include specific economic and business environment factors in the Czech Republic. In particular, insolvency, which affects many companies and subsequent secondary insolvency, in which companies receive as a result of unpaid debts incurred in insolvency business partners.

Important factors that may reduce the successful application of Altman models for Czech companies are different conditions under which the index was created and subsequently tested. This is the difference in the external economic environment of business (growth rate of inflation, etc.), legal environment (impact on payment discipline, the possibility of recovery of outstanding debts, enforcement of tax obligations, investment options) and different methodological conditions (different way to create input data, option pricing etc.).This part will deal with evaluating the success of selected Czech and foreign models applied to agricultural companies. It particularly aims at evaluating which models are most successful in predicting the possible bankruptcy of agricultural companies, which are the least successful.

On the other hand, from the available literature, studies and research conducted in the Czech Republic and abroad cannot be perceived that the bankruptcy model developed in one country cannot be successfully applied in another country. Mostly it is a "universal model" of its successful use depends on economic conditions in which businesses are located and the reliability of accounting data on which the model is based.

For example, from a study dealing with the application of bankruptcy models at 16 Czech agricultural companies implies that the best models for predictions of bankruptcy of agricultural companies is the S-Index (Springate), Tamari index and the Czech model IN95 [6]. From another similar study implies that the most successful models were the ZETA model and the Z-Score model. The model created by Taffler and Tisshaw was identified as the least suitable model [5].

The main reasons for selecting the agricultural sector for the analysis of explanatory power of selected models is the large number of bankruptcies in this sector and also the availability of financial data.

1 Bankruptcy Models Used and Chosen Companies

For the evaluation of bankruptcy models, only companies were used, which are legal entities. The reason was that these companies are registered in the commercial register and thus have an obligation to disclose their financial statements in the collection of documents in the Register of Documents.

1.1 Analyzed Companies

Due to the fact that when analyzing the success of bankruptcy models, the verification is performed on a group of prosperous and bankrupt companies, it was necessary to define these two groups.

Businesses that have been included in the sample companies which have gone to bankruptcy were selected from clusters defined in the database MAGNUS [9] follows:

- company is in liquidation,
- company is in bankruptcy,
- company is in preliminary reports,
- business is in alignment,
- company is in receivership.

The basic assumption for assessing the success of bankruptcy models is to obtain the necessary financial statements. Although Czech companies have incorporated the obligation to publish their financial statements in a collection of documents, this requirement is not met by all companies. This obligation is not fulfilled in particular companies that are in some form of insolvency (bankruptcy, liquidation, etc.). For the analysis, based on a larger number of financial statements, it is also desirable to have access to some paid databases.

Despite the above complications, I managed to get sufficient financial statements for presentation of the analysis of bankruptcy models. The main source used for subsequent analysis of the financial statements was:

- Database MAGNUS [9],
- Database Internet Securities [10]
- Information Server of the Czech judiciary [11].

The original set of financial statements consisted of approximately 1200 historical financial statements. These are companies that are currently in decline and companies which have been assessed as prosperous. For the analysis of companies in bankruptcy financial statements were used for the period up to five years before the crisis. This choice, however, I had to adjust and reduce due to incomplete data. It was mostly financial statements de-

rived from the database MAGNUS [9], where there was incomplete information for some companies which prevented their use for the calculation of bankruptcy models. Where missing data could not be completed from the database Internet Securities [10], these statements were not used for analysis.

Furthermore, the original choice had to be excluded from the financial statements, which did not provide the necessary data for analysis. Reasons needed for exclusion were as follows:

- shortened form of financial statements - the company publishes financial data only in abbreviated form, which is insufficient for the use of models based on much more detailed data (for example, the requirement for the amount of interest expense, short-term liabilities, etc.),
- the absence of some important items of financial statements - for example, sales of own products and services. This lack is probably due to an error in data processing,
- obviously incorrectly classified reports - some reports have been for two years in a row exactly the same, all the items of financial statements have been completed with the same number, etc.

Financial statements of problematic companies, which were used for subsequent analysis, the complete financial statements (full version balance sheet and profit and loss statement for years 2004 - 2008) over the five years prior to the time when it slipped into a crisis situation that is listed above. Among the analyzed financial statements were not included financial statements from 2008, which represents the deep period of the financial crisis. In this period there was a dramatic change in the health of companies, and so their comparability with data from previous years is limited. During the analysis it was found that the success of the bankruptcy models, using the group's financial statements for the years 2008 - 2009, was significantly higher, which reduces their overall comparability.

To select a group of prosperous companies, it was decided to use companies that have been identified as prosperous by the ranking of "The EVA Ranking Czech Republic" and by the sector ranking CZECH Sector Award [12]. The reason for choosing this form of prosperous companies is that the source of data is the paid database Magnus [9] that provides information about individual companies in the form of financial statements (balance sheet and profit and loss statement). From this database, it is possible to obtain information only with certainty about which company is insolvent (using specifications such as bankruptcy, receivership etc.). For companies that do not have these characteristics, it is impossible, without a deeper analysis of financial data, to state the smooth development of a prosperous enterprise and therefore there is no possibility of insolvency. Further selection was made based on criteria specified in the database Securities [10] (companies with the highest turnover, regular positive economic results, etc.).

Because of the potential access to the two paid databases of financial data of companies, I managed to get a sufficient number of financial statements (observation), which is listed in Table 1.

Table 1: Number of observations.

	ZETA	Z'' – Score	Z – Score	Taffler a Tisshaw	IN99	IN01	IN05
Bankrupt companies	502	502	501	499	499	96	96
Prosperous companies	472	472	472	472	470	400	400

Source: own elaboration.

Whereas that the selection of prosperous companies is more likely that some companies were wrongly included in the prosperous enterprise analysis group as they were selected for analysis in large quantities than companies in bankruptcy.

This gives in total 974 observations (from approximately 300 companies). The difference between the number of observations in the ZETA model and the IN05 model (bankrupt companies) is given a zero value of certain financial statement items entering into the financial ratios (e.g. interest income) and the IN05 model can not be compiled.

1.2 Bankruptcy Models

For this analysis the following models were selected:

- **Model ZETA, created by E.I. Altman in 1977 [1],**

$$Z = 0{,}717 * A + 0{,}847 * B + 3{,}107 * C + 0{,}420 * D + 0{,}998 * E$$

WHERE
A = Working Capital/Total Assets
B = Retained Earnings/Total Assets
C = Earnings before Interest and Taxes/Total Assets
D = Market Value of Equity/Book Value of Total Debt
E = Sales/Total Assets,

- **Model Z''- Score, created by E.I. Altman in 1999 [4],**

$$Z'' = 6{,}56 * A + 3{,}26 * B + 6{,}72 * C + 1{,}05 * D,$$

WHERE
A = Working Capital/Total Assets
B = Retained Earnings/Total Assets
C = Earnings before Interest and Taxes/Total Assets
D = Market Value of Equity/Book Value of Total Debt

- **Model Z - Score, created by E.I. Altman in 1968 [1],**

$$Z = 1{,}2 * A + 1{,}4 * B + 3{,}3 * C + 0{,}6 * D + 1{,}0 * E$$

WHERE
A = Working Capital/Total Assets
B = Retained Earnings/Total Assets
C = Earnings before Interest and Taxes/Total Assets
D = Carrying Value of Equity/Book Value of Total Debt
E = Sales/Total Assets,

- **Model, created by Taffler and Tisshaw in 1977 [8],**

$$Z = 0{,}53 * EBT / KZ + 0{,}13 * OA / CK + 0{,}18 * KZ / A + 0{,}16 * T / A$$

WHERE

A = Earnings Before Taxes/ Short-Term Liabilities
B = Current Assets/ Amount Of Liability;
C = Short-Term Liability/ Assets;
D = Sales/ Assets.

- **Index IN99, created by Inka and Ivan Neumaier in 1999 [6],**

$$IN99 = - 0{,}017 * A + 4{,}573 *B + 0{,}481 *C + 0{,}015 *D$$

WHERE

A = Assets / Amount Of Liability / Short-Term Liabilities
B = Earnings Before Interest and Taxes / Assets;
C = Sales / Assets;
E = Current Assets /(Short-Term Liabilities + Short Term Loans),

- **Index IN01, created by Inka and Ivan Neumaier in 2001 [6],**

$$IN01 = 0{,}13 * A + 0{,}04 * B + 3{,}92 * C + 0{,}21 * D + 0{,}09 * E$$

WHERE

A = Assets / Amount Of Liability / Short-Term Liabilities
B = Earnings Before Interest and Taxes / Interest;
C = Earnings Before Interest and Taxes / Assets;
D = Sales/ Assets,
E = Current Assets /(Short-Term Liabilities + Short Term Loans),

- **Index IN05, created by Inka and Ivan Neumaier in 2005 [6].**

$$IN05 = 0{,}13 * A + 0{,}04 * B + 3{,}97 * C + 0{,}21 * D + 0{,}09 * E$$

WHERE

A = Assets / Amount Of Liability / Short-Term Liabilities
B = Earnings Before Interest and Taxes / Interest;
C = Earnings Before Interest and Taxes / Assets;
D = Sales/ Assets,
E = Current Assets /(Short-Term Liabilities + Short Term Loans),

The reason for choosing the above models for subsequent analysis was mainly because the models developed by Altman and also the model, which was created by Taffler and Tisshaw in England [8] are among the world's most widely used models. The above-mentioned foreign bankruptcy models were also the basis for the development of a number of new bankruptcy models.

IN Indexes [6] are among models that are most used in the Czech Republic and therefore these have been included in the selection to be able to analyze the comparability of the explanatory power of models developed abroad, thus based on completely different economic conditions, with models based on the domestic economy and therefore should produce results that better reflect the actual state of the domestic economy.

As mentioned above, the evaluation of the use of bankruptcy models for domestic companies is also based on the assumption that the Czech bankruptcy models have to be applied on domestic companies with greater success and greater explicitness than the foreign bankruptcy models. From this reason, I chose both foreign and domestic bankruptcy models.

2 Evaluation at Bankrupt Companies

As shown in the Table 2 the most successful bankruptcy model was ZETA with 95% successful predictions of bankruptcy. As the second most successful foreign model was the Z-Score model which correctly classified 84% of companies in bankruptcy. From Czech models the IN99 model showed the best results. The bankruptcy model reached 90% correctly classified companies. Two other Czech models IN01 and IN05 achieved similar results (71% respectively 74%).

The least accurate model was created by Taffler and Tisshaw, which reached only 54% success rate. This corresponds to the results which receive Kopta in his study [5].

Table 2: Evaluation of bankrupt companies.

Model	Bankruptcy	Grey Zone	Prosperity
ZETA	94.6%	4.0%	1.4%
IN99	90.2%	6.2%	3.6%
Z - Score	83.8%	5.6%	10.6%
IN05	74.0%	8.3%	17.7%
IN01	70.8%	13.5%	15.6%
Z" - Score	60.4%	21.7%	17.9%
Taffler a Tisshaw	54.1%	14.4%	31.5%

Source: own elaboration.

From the Table 2 is clear that the ZETA model incorrectly ranked only 1.4% of companies in bankruptcy as prosperous companies. The second most successful model was the IN99 model which incorrectly ranked only 3.6% bankruptcy companies as prosperous companies.

Other Czech models showed more inaccuracies and as prosperous companies ranked 17.7% (IN05) and 15.6% (IN01) companies in bankruptcy. The worst results were shown by the Z"-Score model (17.9%) and the model created by Taffler and Tisshaw, which ranked among the prosperous companies even 31.5% of companies in bankruptcy.

From the Table 2 it is clear that the ZETA model ranked poorly in the gray area with only 4% of the analyzed sample of companies. The second most successful model was the Z-Score model which ranked, in the gray zone, only 5.6% of the companies threatened by bankruptcy. Czech models showed more inaccuracies when included in the gray zone with 6.2% companies (IN99), 8.3% (IN05) and 13.5% (IN01). The worst results were shown by the

Z"- Score model and the model created by Taffler and Tisshaw which included in the gray zone 14.4% (Z"- Score) and 21.7% of companies in bankruptcy (Taffler and Tisshaw).

3 Evaluation of Prosperous Companies

Table 3 shows the percentage success of selected bankruptcy models in prosperous agricultural companies.

As shown in the table below, in the prediction of prosperity, model created by Taffler and Tisshaw was the most successful model with 98% successfully classified companies. The second model, which achieved above average results was the Z"- Score model. This model correctly classified 78% prosperous companies. From Czech bankruptcy models the highest result was achieved by the IN05 model which correctly classified 37% of prosperous companies.

Table 3: Evaluation of prosperous companies.

Agriculture	Prosperity	Grey Zone	Bankruptcy
Taffler a Tisshaw	98.1%	1.1%	0.8%
Z" - Score	78.4%	19.7%	1.9%
Z - Score	40.7%	50.8%	8.5%
IN05	36.8%	56.0%	7.3%
IN01	30.3%	67.8%	2.0%
ZETA	4.4%	64.6%	30.9%
IN99	2.8%	31.9%	65.3%

Source: own elaboration.

From Table 3 it is quite clear that the model created by Taffler and Tisshaw poorly ranked among companies threatened bankruptcy, only 0.8% of the analyzed sample of prosperous companies. The second most successful model was the Z"- Score model which ranked only 1.9% companies threatened bankruptcy. Czech models showed inaccuracies, since most companies classified in the so-called the gray zone (IN05 56.0% and IN01 67.8%). Among the companies threatened by bankruptcy the N05 model classified 7.3% of the analyzed sample of prosperous companies and the IN05 model only 2% of prosperous companies. The exception is the IN99 model which classified the group of companies threatened by bankruptcy, 65.3% of prosperous companies. This model was definitely the worst of the selected bankruptcy models. The most successful model for the identification of prosperous companies was the model created by Taffler and Tisshaw.

4 Evaluation of the Success of Bankruptcy Models

The following chart shows the order bankruptcy models based on success in bankruptcy prediction of bankrupt agricultural companies.

1.	ZETA	94.6%
2.	IN99	90.2%
3.	Z - Score	83.8%
4.	IN05	74.0%
5.	IN01	70.8%
6.	Z" - Score	60.4%
7.	Taffler a Tisshaw	54.1%

The above order shows only the ability of bankruptcy models to correctly identify the bankrupt agricultural companies. To assess the appropriateness of the use of models for prediction of impending bankruptcy of companies, it is also necessary to determine its success in the identification of prosperous companies. Although models are mainly focused on bankruptcy, it is appropriate to take into account their ability to recognize prosperous companies and thus ensure that their success in identifying bankrupt companies is not only due to their setting, when most companies are automatically placed between companies threatened with bankruptcy. Given that some models are bankruptcy models, whose primary function is the ability to identify a company threatened by bankruptcy, take into account in evaluating the more the ability to identify bankrupt companies than the ability to identify prosperous companies. This evaluation is shown in the Table 4.

Table 4: Evaluation of prosperous companies.

Used model	Correctly classified bankrupt companies	Points (2.5 times achieved)	Correctly classified prosperous companies	Points (achieved %)	Total Points
Z - Score	83.8%	209.6	40.7%	40.7	250.3
ZETA	94.6%	236.6	4.4%	4.4	241.0
Taffler a Tisshaw	54.1%	135.3	98.1%	98.1	233.4
Z" - Score	60.4%	150.9	78.4%	78.4	229.3
IN99	90.2%	225.5	2.8%	2.8	228.2
IN05	74.0%	184.9	36.8%	36.8	221.6
IN01	70.8%	177.1	30.3%	30.3	207.3

Source: own elaboration.

Bankruptcy models Z-Score, ZETA and IN99 achieved very good results in the identification of bankrupt companies. All three models were able to correctly identify more than 80% of bankrupt companies. The Z-Score model could correctly classify 83.8% of bankrupt companies and 40.7% of prosperous companies.

In the case of the ZETA and IN99 model the success was achieved even above 90% (ZETA 94.6% and IN99 90.2%). However, these models correctly included only 4.4% respectively 2.8% of prosperous companies. This result reflects the facts that the models are quite strict and most companies (whether prosperous or bankrupt) are immediately included in bankrupt companies. Thereby their informative value slightly declines.

The model developed by Taffler and Tisshaw correctly assessed 98.1% of prosperous companies and achieves the best results in area of analyzing prosperous companies. In contrast, analysis of bankrupt companies, it achieved the worst result when it correctly classified only 54.1% of companies in bankruptcy.

The Czech bankruptcy models achieved very good results in identifying companies threatened by bankruptcy, but on the other hand, did not great success in the analysis of prosperous companies. This result is due to their strictness, where most companies are included in companies threatened by bankruptcy.

For overall evaluation of the success of bankruptcy prediction on bankrupt agricultural companies, it is necessary to take into account the erroneous inclusion of bankrupt companies in prosperous companies.

The following Table 5 takes into account the erroneous inclusion of bankrupt companies in prosperous companies and the final order of bankruptcy models.

Table 5: Evaluation of bankruptcy models.

Used model	Number of points obtained	Incorrect classification of bankruptcy. companies	Adjustment points	Total Points	Final Ranking
Z - Score	250.3	10.6%	-10.6	239.7	**1**
ZETA	241.0	1.4%	-1.4	239.6	**2**
IN99	228.2	3.6%	-3.6	224.6	**3**
Z´´ - Score	229.3	17.9%	-17.9	211.4	**4**
IN05	221.6	17.7%	-17.7	203.9	**5**
Taffler a Tisshaw	233.4	31.5%	-31.5	201.9	**6**
IN01	207.3	15.6%	-15.6	191.7	**7**

Source: own elaboration.

For bankruptcy models, it is necessary to eliminate the possibility of incorrect classification of companies threatened by bankruptcy, in prosperous companies. As is evident from the above table, most companies threatened by bankruptcy, were included in prosperous companies by the model created Taffler and Tisshaw (31.5%). This percentage is very high, so this model fell in the final ranking to sixth place and therefore is inappropriate for identification bankruptcy in agriculture. The most successful models are Z-Score, ZETA and the Czech model IN99. Before considering erroneously inclusion of bankrupt companies

in prosperous companies it was obvious that the least suitable model for bankruptcy prediction is the Czech IN01 model.

Conclusions

In the previous section, the success of models in predicting bankruptcy of agricultural companies was described. Below is the final order of the success of the bankruptcy models which based on a correct identification of bankrupt companies and correct identification of prosperous companies. The final evaluation of the usefulness of models for the bankruptcy identification is as follows:

1. Z - Score
2. ZETA
3. IN99
4. Z'' - Score
5. IN05
6. Taffler a Tisshaw
7. IN01

Although the model developed by Taffler and Tisshaw achieves the best results in prosperous companies, in analysis of bankrupt companies achieved the worst result when it correctly classified only 54.1% of bankrupt companies, so therefore it is inappropriate for identification bankruptcy in agriculture.

The most successful models are Z-Score, ZETA and the Czech model IN99. The Czech model IN01 was identified as the least suitable model.

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Solidarity and Equivalence in Social Systems
Solidarita a ekvivalence v sociálních systémech

VOJTĚCH KREBS

Abstract
Solidarity and equivalence are long-term issues in all social systems in advanced countries. At first glance it may appear that the two principles act against one another, though in reality there are lots of very close ties between them – to the extent that social systems are constructed as universal the principle of solidarity asserts itself, while to the extent that social systems are constructed according to levels of income from economic activities the principle of equivalence asserts itself. It is just the extent to which those individual principles should be enforced that makes it such a fundamental question when deciding on modifications to individual social systems. The paper is thinking of theoretical solutions of the principle of equivalence and solidarity and their use in individual social systems in the future. It brings arguments the extent of solidarity is too large and that is why the principle of equivalence needs to be strengthened.

Key words
solidarity, equivalence, social systems

Abstrakt
Solidarita a ekvivalence jsou dlouhodobým tématem všech sociálních systémů ve vyspělých zemích. Na první pohled se může jevit, že oba tyto principy působí proti sobě, ve skutečnosti však mezi nimi působí řada velmi úzkých vazeb – zatímco v míře, v níž jsou konstruovány sociální systémy jako univerzální, se uplatňuje princip solidarity, v míře, v níž jsou sociální systémy konstruovány v závislosti na výši příjmů z ekonomické aktivity, se uplatňuje princip ekvivalence. Příspěvek se zamýšlí nad teoretickými východisky principu ekvivalence a solidarity a jejich uplatnění v budoucnu v jednotlivých sociálních systémech. Přináší argumenty pro to, že rozsah solidarity je příliš velký a je nutno posilovat princip ekvivalence.

Klíčová slova
Solidarita, ekvivalence, sociální systémy

Introduction

Social system[1] not only in our society but also nearly in all European advanced countries faces a necessity of a crucial change (reform). It is expected to contribute to a recovery of public finance and will support sources and incentives of the efficient economic development in postmodernist society without the heart of its social cohesion being disturbed. Even though it is impossible to state if there are any effects, the changes are inevitable.

1 *The social system here means a social sphere - the part of the system of society which forms a reference frame for social policy with its internal relations and connected with social background as well.*

Continuing development of the current social system is not sustainable even in a mid-term horizon. There are lots of causes. In summary, we can classify them as a risk of blocking following social development which is related to a threatening of the effective economic development and possible negative impacts on creating sources of its growth and also with negative impacts on living conditions and improvement in their quality. It may be probable or even sure, more radical changes in the social system will be unpopular but unavoidable. The reform cannot be carried out without "conditio sine qua non" consisting in changes in people´s approaches and behaviour. And these ones will not be changed easily and fast due to the people brought up in the generous social state in the past.

Radical changes must be based on what is crucial for their structure - which are undoubtedly two basic (absolutely different) principles: of equivalence and solidarity. It will be not only the problem of viewing them, but also a change in their position (importance) in the social system.

The aim of the paper is to point out the necessity to strengthen the principle of equivalence in individual social systems.

Most importantly, as it has been said, let´s suppose two important principles in social systems play an important role, although both are supported by different ideologies and different economic and social impacts are expected from them. On the other hand, all other trajectories, including our social system, must be focused on optimum combination and cooperation and contribute to harmonious development of the whole society.

1 Principle of Equivalence

1.1 Common Solutions

The concept of equivalence means an equal value, something having the same effect and value. In social policy, the principle of equivalence is often applied mainly in systems of insurance and is defined as a principle according to merits or efficiency.[2] It supposes distribution of pensions, possessions, conditions etc to individuals will be equal, consistent with their performance, according to their merits.[3]

We can state, the principle of equivalence is currently in a process of a revival. Definitely, it is connected with the fact the present modern society is strongly influenced by the idea of individualism. More and more abilities of individuals, their performance, competitiveness, intellect and social qualities (communicative abilities, cooperation, personal responsibility, ethical behaviour...) are relied on. Ideas of idealism explain the fact that individuals play the most important role in the development of a society. Societies provide them with more and more freedom and assumption for their individual behaviour and finally even goals in life are met more at an individual than team level. Economic theory promotes

2 *The social system here means a social sphere - the part of the system of society which forms a reference frame for social policy with its internal relations and connected with social background as well.*

3 *Problem how to measure merits including validity of such measures is put aside.*

the individualistic concept as well. Ideology of neoliberalism puts the emphasis on individuals, their freedom, rights for property and responsibility is viewed individualistically. It supposes that the principle of equivalence meets requirements for economic growth and its stimulation better. That is why it is openly against publicly organised solidarity and social redistribution, respectively against its "excessive" dimension (despite the fact it cannot define that quantitatively).[4]

Ideology of individualism can be characterised:

a) it is desirable so that every individual should work hard and exploit his/her individual talent to become competitive in the labour market,
b) if he/she works hard, his/her work is appreciated and he/she is adequately compensated with pensions, wealth, prestige ..., and even power,
c) those who work so hard are really successful and able to secure their existence and an independence, they " stand on their own two feet" and do not need any specific social transfer,
d) economic failure and lack of self-sufficiency is caused by him/her, by his/her insufficient work effort a he/she must bear consequences /i.e. low income, loss of property, poverty .../ and social transfer provided by the solidarity organised by the state is according to the neoliberal concept minimal.

It is obvious that application of the principle of equivalence in social systems is in compliance with the ideology: it supports motivation to work, is aimed at social independence on the state and their self-sufficiency. Consequently, it leads to lower requirements for a range of redistribution for social purposes and therefore to save public resources mainly in the social security system. As a result, it allows lower tax burden, higher rate of investing and higher growth of GDP. It is not necessary to emphasise the ideology is obliging to the "self-sufficient" (talented, qualified, hardworking ... people), in fact high income groups of people and it is accepted by them well. As to "non self-sufficient", who cannot meet requirements of equivalence and secure their existence with their incomes (they needn´t be lazy people who parasite and stay in substandard conditions), those ones rely on a charity. We can see equivalence has its advantages and disadvantages. Positive aspects of the principle should be used without being given an ideological marking. The principle of equivalence in a social system (e.g. in pension reform) cannot be rejected only for the reason the neoliberal theory is based on it. The key criterion must be the fact whether a principle leads to creating functional and long term sustainable social system.

1.2 Equivalence in Social Insurance

Although the principle of equivalence may seems to be in opposition to set social systems whose the most characteristic feature is, on the other hand, redistribution and the principle of solidarity. But the principle of equivalence is relatively widely used and above all in insurance area. Equivalence is, for example, a condition of an overall balance in all insurance systems and its macroeconomic equivalence guarantees its functioning, continuity and even whether the clients succeeded in revaluation of their deposited means. It

4 More details concerning the problems see e.g. KELLER, J., Soumrak sociálního státu, 2005.

applies both to private and public insurance (it is not influenced by the fact that possible deficits of a public insurance will be compensated from state revenues). The requirement for equivalence is very categorical and it is necessary to be met.[5] The principle of equivalence in insurance is used as a tool which helps to achieve a balance between a height of insurance and expected risk (loss) which can be compensated by it either the equivalence between individual risks and a height of adequate insurance (the principle of individual equivalence) or equivalence between homogenous group of risks and insurance of adequate group of the insured (the principle of collective equivalence). In the case, we must take into account problems of solidarity because the basis of every insurance consists in a willingness to join together to solve common problems. Insurance systems are examples how both principles are closely interconnected.

At first, the development was focused on the private insurance. Increases in risks, responses to originated demands of industrial development for insurance sector and the fact that that the analysis of individual risks was becoming very difficult they resulted in gradual application of collective equivalence, applied to a big group of heterogeneous risks (similar risks were linked together). Bismarck acted with his concept of social insurance in the same way. Social and private insurance were similar to one another and based on - to a certain extent - solidarity (probability model). During the time both insurances and their development started to differentiate.

Reforms by W. Beveridge became a turning point in the development. By means of these, the principle of solidarity was strengthened and social insurance was formed in practically the same shape which is known nowadays. Strengthening of solidarity was closely connected with the adoption of insurance derived from incomes. New fixed minimal benefits and a fixed contribution for all insurance holders were set. Dependence of insurance on incomes, especially if no limits the insurance is paid from are set, puts pressure on solidarity and its acceptance not only by the high income insured but also the society as a whole.

Private and social insurance have started to go on their own ways. Private insurance is aimed at strengthening of the principle of individual equivalence. By means of improved methods and computers, it is possible to carry out highly differentiated analyses of risks which enable insurance differentiation and it is possible to adapt it to clients´ requirements. Better living standard and income level of some groups encourage its development as well. It must cope with some obstacles, income differentiation in society, it means social and economic conditions of the lowest income groups for which the private insurance might not be available. On the other hand, goals of social insurance and the insurance dependent on incomes (even in addition to social security system - see health insurance) and due to a solidarity is available even to groups which are excluded from the private insurance. But its price for the society is very high. The system prompts undesirable development: solidarity is too high, relation between insurance and contribution is vague, motivation is low, incomes are lower than costs, the system is permanently unbalanced, deficits grow and macroeconomic equivalence is damaged.

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5 Let´s remind e.g. the height of the CR public debts which are considerably influenced by mandatory expenditures as an obstacle to accept euro currency. Or acceptance of euro, mergers, bankruptcies of insurance funds in case of insolvency.

Currently, the difference between the private and social insurance is becoming topical. The principle of equivalence should be involved even in the social insurance. It prompts the questions: social conditions have changed since the past, especially the time after the 2nd world war when the solidarity in the system of social security expanded most.[6] As a result, besides strengthening solidarity it will be unavoidable to join other elements of the social system currently closely connected with the prosperity of the society (e.g. education sector) rather than pension and health insurance. Moreover, it is necessary to consider the fact the current system of the construction of the insurance respectively its impact on costs results that the insurance is paid in fact by consumers in prices of products not by the insured or their companies. So far the solution of the deficit of the system has been unsuccessful - it has been connected with its income side. It leads to thoughts that equivalence strengthened at the expense of solidarity must exclude the risk that some groups will stay without any protection of the state. Apart from other things, the state is bound to that by its and even multinational norms. We can say, this is an ethical requirement which tests all societies but involves some social tensions and above all necessity to cope with many false prejudices. But let´s go back to the principle of equivalence.

Application of the principle can be found in social systems out of the insurance sector. In a specific modification (in the meaning of proportionality, adequacy), we can speak about it when providing social benefits which need to be equivalent and adequate e.g. to an effort to cope with poverty or to search for a job. It is similar with some benefits of the state social support where equivalent family incomes are required. Therefore, equivalence is neither alien to social systems nor far away from them.

1.3 Preferences and Risks of Equivalence

What are the preferences and risks in social systems? Most importantly, let´s say a current glorification of social self-sufficiency which is supported by the ideology of individualism and its principle – the principle of equivalence can be, in our opinion, beneficial to some its parts. It concerns mainly our current system of pension insurance which shows excessive solidarity and besides supplementary systems it offers only limited possibility of the equivalence of deposited insurance. High income people have relatively low pensions because pension ratio to their wages decreases with higher wages. In newly set pensions, the ratio, after 40 year insurance and with the wage equal to 0.5 multiple of average wage in the national economy, is 84%. With the wage equal to four-multiple of average wage is only 17%. It is caused by a significant reduction in individual basis of assessment. The system is too generous, in favour of low incomes and provides insufficient compensation for pensions constructed from high incomes. The situation was a subject of the complaint sent to the Constitutional Court which decided that it is necessary to change the method of calculation of pensions (its findings resulted in so called "small pension reform" which came into force on the 1st October 2011).

6 *Current system of social insurance has its roots in recent past, in the time of industrial revolution and neither reflects present conditions for the growth in productivity nor social position of insurance payers.*

Due to the growing labour costs the current basic system of pension insurance increases growing production costs and make the competitiveness of Czech producers worse. It is caused by insufficiently applied principle of equivalence (benefits respond to paid insurance insufficiently especially as regards mid and high income groups). It does not motivate even economically active citizens. Forthcoming reform should strengthen the requirement for the equivalence in the pension system. Only pensions guaranteed by the state should be provided from the current system but in more restricted height than so far. The rate of the decrease in provided pensions needs to be considered very responsively. It should not be too high so that the system would not become unattractive for high income people.[7] At the same time changes in its parameters should be set to restrict the principle of solidarity and strengthen the principle of equivalence. In other expected elements of the reformed pension system (above all the second and the third pillar), the strengthening of the principle of equivalence or its dominance (the third pillar) and reduction in solidarity is expected. Those whose contributions to the system were higher, would receive higher pensions.

Emphasis put on the principle of equivalence is supported by two interconnected issues: firstly, there are demands for economic resources given by the requirement for a permanent sustainability in the future development (sustainable development). In social context, it regards mainly massive support of education system where a social transfer should be strengthened. Secondly, there are the problems coming from the current pay-as-you-go system based on the generation solidarity. Reactions of the current pension insurance to these facts logically result in another move in the responsibility for own social needs towards individuals. Strengthening of the equivalence in some above mentioned elements of a social system could lead to stabilization or a decrease in redistribution in the social security system as a whole and restrict excessive state generosity. In summary, we can make economies in public finance[8] (and possibility to use them in other elements of the social system) when accepting the principle of equivalence. Besides, a specific incentive how to change social behaviour of citizens can be expected as well. Without the changes in people´s attitudes the reform efforts will be only partial and not very successful.

Anyway, these positive aspects connected with the strengthening of equivalence have its obstacles and risks. Above all, the principle of equivalence is hard for so called "non self-sufficient". In all societies there are and will be such people who will not be able to secure their existence in the system based on the principle of equivalence whose application represents high financial barriers for someone. The private insurance is sometimes unaffordable for those who are more dependent and need it most. A part of people is often dependent on other people´s help, their tolerance, sympathy, solidarity and it is impossi-

7 Pensions would be given those in need who could not secure themselves (low incomes as a consequence of unemployment or disease) either with private insurance or savings.

8 Economies in public finance can be found even out of social system. There is the wasting due to insufficient audits of expenditures of state budget. Lots of things are financed not effectively. Some subsidies are not dynamic and our industry and other economic institutions got used to receiving billions extra without being demanded for better results or savings. These problems, as well as other methods (tunnelling, tax evasion) need to be urgently solved. But the problem is not here on agenda.

ble to refer them simply to charity how the neoliberal doctrine thinks. Charity activities are not able to meet people´s requirements, we have to respect multinational commitments, legislation, possible growth in social tension in society...

2 Principle of Solidarity

2.1 Background

Solidarity (cohesion, mutual support) is an essential element in structures of all social systems and how it is nowadays understood, it is not only mutual understanding and help, but also mutual responsibility. It is considered as a significant momentum not only of material but also moral and spiritual development and a condition of the progress.[9] "It is a reflection of the fact the person is dependent on the coexistence in the society he/she helps to create and which provides him/her with some benefits. It expresses human sympathy and responsibility for themselves and the others as well. In democratic countries is based on a free will and willingness to respect interests of a wider community. This is expressed in representative democracy in democratic countries."[10]

This mostly accepted definition characterises its heart of the matter. It might not be changed even in the future: it means it should stay in our country (in the EU as well) as a value which can help to guarantee worthy living conditions to all citizens, it should contribute to a prevention of social tensions and conflicts and to support social cohesion in the society. But we must say it cannot be on the same scale so as not to damage the idea of self-sufficiency and economic effectiveness and prosperity.

Solidarity, as we know, is not a definite term. It can have many forms, ways of implementation, different size, impacts etc.[11] For example, from the vertical point of view we can speak about an international solidarity (see some activities of multinational organisations such as e.g. WHO, ILO, the World Bank), about a solidarity of society which is organised by the state, a solidarity within narrow social groups (solidarity of villages, companies, communities, churches, charities) and a solidarity of individuals, families, households. From the horizontal point of view we mostly speak about an intergenerational solidarity, solidarity between ill and healthy people and the employed and unemployed etc. In addition to that (especially as regard financing health care) we speak about accidental and subsidised solidarity whose differentiation consists in defining rules to set the insurance which is delivered by the insured to a common financial fund.[12] We can see solidarity has a lot of meanings and therefore it demands a deep analysis and research of different motives, relations and consequences which are, of course, different. Only if we proceed this way we

9 *KREBS, V., a kol., Sociální politika, 2010, s. 33-34.*

10 *More details see: KREBS, V., a kol., Solidarita a ekvivalence v sociálních systémech, 2009.*

11 *More details see BALDWIN, P., Politics of Social Solidarity, 1990.*

12 *Random solidarity is used among private insurance clients when insurance paid by them reflects possibility of an event they are insured against, value of insured subject and expected compensation derived from that without considering social and economic status. As for the subsidised insurance, the height of insurance is dependent on the ability to pay it and its height must not be differentiated by the insurance office according to risks the client represents.*

can reach the functionality and sustainability of the whole social system in the long-term horizon. Without such analysis, there is the risk that the thoughts of solidarity will lead to non effective generalization aimed at e.g. a tendency to understand the solidarity as an entirely positive intellectual concept having only positive features or on the other hand, it will be rejected as a concept encouraging dependence, non-self-sufficiency, demotivation and low effectiveness of the economic system. But of course, the solidarity can be both desirable, positive, encouraging and supporting prosperity even in a social harmony and undesirable, demotivating and supporting parasitism and social erosion and resulting in delayed impacts on economic growth. It is important to recognise these effects in concrete social and political measures and make a deliberate choice.

As long as we speak about specificity of the phenomenon of solidarity, we cannot ignore the differences between the spontaneous, voluntary solidarity (some authors view that as the real one) and the forced, involuntary, real. The topic must be paid more attention since it seems there are some ways out how to solve social problems.

2.2 Voluntary Solidarity

Voluntary solidarity is appreciated by everyone because it is natural to give up some profits in favour of someone else either the motive is consanguinity, affection, sympathy or only the fact he is expected to do that. Someone regards it as the only acceptable one. There is a quotation: "There is either spontaneous solidarity or none. To dictate it means to damage it. A law can make people avoid immoral behaviour but the effort to force them to show their solidarity is useless."[13] Of course, the voluntary solidarity (supported by liberal thinking) plays an important role in social systems apart from other things, it does not create so big pressure on redistribution. It has probably higher ethical value than the forced one. It is also a base of all charity activities. But the problem is, it is impossible to guarantee the functioning neither of the social security system nor the social system as a whole.

2.3 Forced Solidarity

The non voluntary, forced solidarity means the solidarity forced by the state in the form of taxes and obligatory public insurance and the state obligation to guarantee even solvency of relevant funds. After the second world war- and so far - the solidarity of the society organised by the state has significantly participated in the development in social systems in our country (and in some other European countries) either in the form of taxes or insurance. Large social security of citizens needs a high rate of redistribution. When setting it, the state must be aware of the antimony between performance and equality and must take into account that the high rate of redistribution could have a negative impact on the economy and will lead to a demotivation of individuals and lower responsibility for their own living conditions. It is a notorious fact that the forced redistributions are not desirable or acceptable. The real development in the last years shows that the risk of "the incautious rate of redistribution" has become very topical in the CR.[14]

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13 BASTIAT, F., Justice et fraternité.

14 See KREBS, V., a kol., Sociální aspekty transformace české ekonomiky, 2004.

A situation in public finance shows the urgency to solve the problem: state deficit is high (2005 accounted for 5.1% GDP) and the CR does not meet Maastricht criteria (3.0% GDP). The loss of the CR credibility and the EU sanctions are becoming a real risk. Above all mandatory expenditures (mainly expenditures on the social security and health systems), which are obligatory for the state, participate in the situation. Without a reform in the field - even without a change in the current ratio of solidarity and equivalence in the social security and health system – we can hardly continue since the future mandatory expenditures could exceed the revenues of the whole state budget. Such development is impossible because the state must guarantee even its other functions e.g. development in education, science, research, investments, justice etc.

A search for an "optimal" rate of redistribution respectively the state forced solidarity in social systems is not new. We have been able to see that at least since the beginning of the 80st of the last century. Since the time an increase in expenditures on health care, a pension security of ageing population, an increase in unemployment but also the need to improve the education system have got in a conflict how to solve such extensive problems and how to finance the solidarity. It seems that the changes that happened due to the concept of so called "post-welfare state" and correspond with the optimization of the system of solidarity became a step in the right direction (emphasis put on strengthening of the mentality of independence and responsibility, voluntary solidarity, the principle of subsidiarity, differentiation and testing of social benefits etc. They were also considered in the reform at the beginning of the 90s). But currently, we can see they were not sufficient.[15] We cannot accept them and we must insist on a state shift towards some restrictions in the forced solidarity in some elements of the social system. We must consider that the viewing solidarity is not restricted only to it.

Mainly, as far as the extent of solidarity of society the size of the forced solidarity is too wide. Such solidarity is desirable where a person in need and without means is provided a help. It is desirable and ethical so that such burden will be shared by the state (by fellow citizens). On the other hand, there is a question whether the same solidarity should increase many citizens´ incomes (e.g. of mid and high income groups) by means of miscellaneous benefits. If a person in need gets a support to a worthy life in society it is something else than a person using it to save its expenses (in fact, it increases incomes) which could be paid by himself/herself. In the second case, the solidarity of society seems to be entirely redundant and the financial transfer is far from the redistribution between the rich and the poor. No one doubts it is reasonable and right. The core of the problem is in an expansion of the solidarity related to strong social states after the 2nd world war and connected with the historical situation and conditions of the time.[16] But these are currently different and the policy of solidarity must respect that.

Another example of excessive dimension of the solidarity forced by the state can be found in the system of health insurance financing health care. Nobody is sceptical about the necessity of significant changes which will have to accept a reduction in the weight of soli-

15 See ASPALTER, CH., The Welfare State in Emerging-Market Economies, 2003.

16 See e.g. SPIEKER, M., Sociální stát a jeho krize, 1996.

darity and strengthening of equivalence. It is obvious that the ideas of long-term stability of the system coming from different ideological solutions, attitudes to health care cannot succeed. The solution may insist in an acceptance of a certain complex of objectively respected requirements for health care.[17]

Essentially, it can be expressed in three axioms:

a) health care can be provided by the state only in a socially limited extent;[18]
b) the principle of solidarity between healthy and ill people must be partly restricted and compensated by the principle of equivalence;
c) health care drawn from solidary health insurance must support individuals´ responsible approach to health.

The situation when practically all the health care is financed by the fund of general health insurance is not sustainable in the long-term. It will require sophisticated negotiations and reach an agreement on content and extent of provided guaranteed care. In addition to it, limits to what individuals are entitled from their policy, implement e.g. a specific contract between a client and his/her insurance office. The insurance of people who risk their health and lives in extreme sports or consciously damage their health (alcohol, smoking, drugs) must be solved as well. Health insurance offices e.g. could take into account patients´ care of their health and commercial insurance offices should make provision for that.

Finally, a very important fact of excessive solidarity in the system of basic pension insurance is necessary to be mentioned. Here we must only emphasize that the system of pension insurance is an area which definitely meets requirements for strengthening the principle of equivalence best: paid insurance give the right to an adequate benefit, but at the same time it is an area which is in the social security system most closely connected with a participation (and reintegration) of people in the area of work and which provides wide space for partial compensation of the principle of solidarity by the principle of equivalence.[19] It could relieve a resource of society e.g. to finance development in education which is most suited to balance limited life chances. Therefore, it is not possible to make only "cosmetic changes" in the current basic system but restructure it and strengthen the weight of equivalence.

2.4 Perception of Solidarity of Society

Next, the perception of solidarity of the society should be changed. So far the aspect of help and understanding has predominated and mostly positives and expectations have

17 This one was developed in compliance together with new advantages and disadvantages of models of health care, based on ideological solutions above all in the European region and they consider even the situation in our medical care after the year 1989.

18 It should be a result of a consensus of society. It can be defined as a willingness of citizens to contribute to the fund of public health insurance through solidarity and willingness to accept a certain level of health services (determined by the solidarity). Perceptions are different which open a space for a private health insurance.

19 Expenditures on pension insurance accounted for about 338bn crowns in the year 2010 and represented about 70% of all expenditures on social security, 9.1% GDP.

been emphasized. But the solidarity at the same time means responsibility which can be connected even with negative impacts. We must be aware of that especially when considering the solidarity forced by the state. This is not only a matter of those who draw from the solidarity funds but also of those who are obliged to contribute. Currently, preferences of solidarity are spoken about not possibility of getting into a conflict with other legitimate interests. The solidarity has its ethical and material value even for those who benefit from it (benefits, support etc). But is it an ethical value for those whose well-earned incomes are reduced and whose freedom is limited? Evidently not. There is a problem of covering taxes and insurance without non incentive consequences, possibly even unwillingness to pay them and also a conflict - freedom versus extreme regulation. From the point of view, the solidarity of society gets "an ethical certificate" if it is adequate to the economic development and suitable for those who profit from it and for those who contribute. The payment on solidarity purposes must be "reasonable", as far as the effect and use and a burden of payers. An alternative solution supports tax evasions, insurance frauds, black economy etc. Current agreements in the tax area and in public insurance (social and health) - especially in long-term horizon - show that the forced solidarity is often inefficient and has negative impacts on the moral and social behaviour, it narrows space for the voluntary solidarity. And it results in changes in rules of their setting.

One thing is certain, the present methods in the social system have not been sufficiently significant so that they could set a trend heading towards an acceptable solidarity of society. So that is why such objective is hard and redistributions are always a political decision of the government where not only ideas but also interests of various groups and lobbies are met. In addition to that, we are still influenced by our socialistic past and the idea of equality is deeply rooted in our society. That is why not only the social development brings crucial changes in new technologies and their application in production but also changes in social relations, life style, labour market, education ... whose consequences cannot be fully predicted or we do not want to imagine them because they do not concern us directly. These changes as the whole expect a revision of the current social state and its functioning and necessarily change opinions on redistribution of the society.

Conclusions

Most importantly, we should say the development of a society (not only ours) currently faces a certain friction between economic and social area. The turning point between them is far from a balance between an economic effectiveness and social thoughtfulness, (which were more common in the beginning of a development of the welfare state and social market economy in west European countries after the 2nd world war). Each of these areas - despite obstacles and their approaches - works according to its own logic: effectiveness and performance is a domain of the economy, a passive social state mainly based on the forced solidarity is a domain of the social sphere. To a large extent, both areas are functioning so that they destroy each other. What is the way out of the vicious circle? Either higher and higher economic performance, supporting growing and never ending demands for a solidarity how they were accepted by the industrial society in the last century or an effort to optimize the rate of the solidarity connected with a revaluation of its extent, purpose, effects etc, connected with a strengthening of the principle of equivalence and preferring other life values which will meet requirements of modern

post-industrial society better. We cannot ignore the fact that opinions on the development in the world which advances and are in the permanent process of reassessment. Dominant values in a specific society are always connected with the history, reached degree of social development, with commitments and mission of a given stage, with other perspectives of development etc. They are not definite for ever which applies to the Czech social system as well. In our opinion, changes in hierarchy of values, other conditions of social development, its mission and goals must be reflected in attitudes to the solidarity and equivalence in social systems. But so far it has not happened.[20]

We can summarize: current social system and especially changes in the social security system reflect conditions in which relatively generous social system was developed and has been working till now. The etatist concept of solidarity, we are still based on, is sharply inconsistent with requirements of the future post-industrial society. Not only the state of public finance, but also the increasing impact of individualism which relies on individuals more and more, his/her abilities, performance, intellect and social qualities confirm that. The change in perception of the sense and the role of solidarity and equivalence in social system and necessity to change proportions to strengthen the principle of equivalence are connected with it.

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20 As long as we do not specify solidarity, we have the solidarity forced by the state – in the form of taxes and obligatory insurance in mind.

International Scientific Conference Pension Reform– How to proceed?

Mezinárodní vědecká konference Důchodová reforma – jak dál?

JAROSLAV VOSTATEK

Pension reform is the subject of academic research conducted by the University of Finance and Administration to an extent over and above the curriculum of this issue. This is also due to the fact that it is a highly topical issue for the Czech Republic. These are the reasons why on 5 May 2011 the University hosted the second international conference in a series of such conferences on this topic at the Grand Hotel Bohemia in Prague. In addition to three introductory lectures, the Scientific Committee included a total of 15 contributions to the discussion as part of the conference programme.

Robert Holzmann who, until recently, was Sector Director of the Social Protection Department of the World Bank, and this year became a recipient of a pension from the World Bank, staying on as an advisor to the World Bank and returning to the University of Vienna, was the keynote speaker. R. Holzmann stressed the need for improving and reforming existing pension systems within the European Union, supported the concept of the pan-European pension system, the main pillar of which is the modern version of social insurance, going by the NDC (Non-financial Defined Contribution system) acronym. The construction of this fully earnings-related insurance pillar is very simple and understandable for its participants. Experience with its application is very good in a whole number of countries in both Europe and beyond. It is simple to migrate to the NDC system from a similar so-called point social insurance system, which is employed, among other countries, in Germany and Slovakia.

R. Holzmann noted that the NDC and the pan-European pension system can be migrated to not only on the basis of EU-level co-ordination, but also "from below", drawing on the experience gained by neighbouring countries. The NDC could operate in the EU similarly to value added tax – to have common basic principles, giving wide room for the amount of the rates as well as for the overall weight of this component in the entire pension system. The concept of the pan-European pension system also places considerable emphasis on the social pillar, based on solidarity, and on a (consistently) voluntary private pillar. In his opinion, the financial crisis has reinforced the importance of private pension schemes; he emphasised the high real yields in the Polish system of mandatory private savings, on average over its entire duration.

The latest results of university research in the field of pension reform were presented by **Jaroslav Vostatek** (University of Finance and Administration). He supported the pan-European pension system and also a further increase in the retirement age proposed by the government. However, instead of the government proposal to change the bend points employed in the calculation of pensions, he recommended a fundamental, con-

ceptual modification of the Czech Republic's entire public pension pillar – by way of its division into two pillars (social and insurance), in accordance with the concept of the pan-European pension system. He demonstrated, using a model case, the possibility of this fundamental reform, without reducing the pensions of insured from lower income groups. The proposal consists of a substantial increase in the basic pension amount assessed to 15% of average national wage and the abolition of bend points, while reducing the ceiling for the calculation of premiums to 150% of the average national gross wage.

The implementation of the pan-European pension system by the proposed method would lead to an increase in the old-age pensions of the insureds with average and above-average incomes. The necessary additional funds for this modification can be obtained by introducing a financial activities tax (a substitute for the missing VAT for the financial sector) and the reduction or abolition of state support for building savings (Bauspar), supplementary pension insurance and private life insurance. Reducing these subsidies will afflict those income groups whose state pensions will be increased, so that this will actually result in a simplification of the pension system. The existing pension entitlements can be calculated and further indexed, with the new scheme for calculating premiums and pensions only applying going forward.

Proposals for the creation, in one way or another, of a mandatory private pension pillar are vigorously supported, not only in the Czech Republic, by the relevant financial groups; these proposals have nothing to do with liberal conceptions of a pension system. The full or partial privatization of the public pension pillar is always associated with transformation costs that have a negative impact on the population and the state; this alone is sufficient reason to reject such a privatization. Nor does the shifting of the investment risk, mainly associated with the endeavour to rid providers of pension and investment products of this risk, to the insured have any rational economic or other basis. Social security pensions cannot, even in part, be met by way of an opt-out to private funds, where the insureds have to choose between alternatives, which virtually none of them can understand and for which only the insureds in the top 10% of the income earners can have sympathy, who can do without the relevant retirement savings. An example of a compromise that enjoys maximum acceptability in terms of investment risk is the Swiss system of mandatory occupational schemes with a return guaranteed at the level of inflation.

In his speech, **Jiří Král**, head director of the Ministry of Labour and Social Affairs, characterised the hitherto development of the Czech pension system and the need to carry out the envisaged pension reforms. Expenditure on public pensions has reached 9.2% of GDP in the Czech Republic. Average net old-age pensions represent 41.9% of average gross wages. Among the positives of the public pension system there is an increase in the employment of older persons, low poverty rate among older citizens, the uniformity of the system and successful premium collection. The negatives are: the unpreparedness of the system for ageing, insufficient equivalence in the amount of benefits, a scope of substitutive insurance periods unique in the world and low payments by the self-employed.

Ten private pension funds have 4.4 million participants, who contribute an average of CZK 433 per month and receive an average state contribution of CZK 105. Pension fund assets represent 5.9% of GDP, with the average real return on clients' investments being a mere

0.5% annually. The system of supplementary pension insurance as well as of private life insurance is a reliable one, the penetration is high, in addition to it the employers share is on the rise. The completed integration of pension funds is also a positive aspect. A downside is the small development in private savings for old age and low returns of private funds.

As expanded upon by J. Král, a consensus was reached within the framework of government advisory committees that the objectives of pension reform in this country are: diversification, fiscal sustainability, intergenerational distribution of the burden and increasing the equivalence of pensions and contributions into them. In the public first pillar, the government will implement parametric changes in the context of the response to the finding of the Constitutional Court, which ordered that the principle of equivalence between the premiums paid and the pension amount be reinforced. The Ministry of Finance, in cooperation with the Ministry of Labour and Social Affairs, is preparing the creation of the second pillar, in which the insureds will be able to divert a portion of the premium rate to their individual accounts. The Ministry of Finance is also preparing the transformation of the existing pension funds (third pillar).

The opening principal speeches were followed by a series of contributions from foreign as well as domestic academics and practitioners. **Hans Fehr** (The University of Würzburg and Netspar) presented a contribution titled "*Should pensions be progressive? Yes, at least in Germany*", co-authored by Manuel Kallweit and Fabian Kindermann. To measure pension progressivity, he uses the progressivity index, calculated by the OECD. He states that, in recent times, the payment of earning-related pensions has been reinforced, on average throughout the world, i.e. there has been a decline in the progressivity index. It has been concluded, based on the use of the overlapping generations model, that it is necessary to significantly strengthen the progressivity of pensions in Germany, the best way being for the share representing flat-rate pension reaching 40% of the total average amount of old-age pensions. With this diversification, the equivalence principle of insurance dominates over the labour supply distortions. The mere lowering of pensions (e.g. by the privatization of pensions) only reduces economic efficiency.

In his contribution, **Kenichi Hirose** (ILO) focused on the trends and basic problems of pension systems and reforms in Eastern and South-eastern Europe. He pointed out the erroneous policy of the World Bank, when in the past it pushed for privatization of the public pension system in an agreement with the IMF. He stressed the importance of social forces consensus on the form of the pension reforms and conflict of interest of the main players of the privatized systems in post-communist countries. Pension reforms can be implemented in accordance with international conventions of the ILO. The increase in employment among the young generation and the raising of the real retirement age by an increase in employment participation among the older generation are critical problems.

András Simonovits (Economic Institute, Budapest) had an aptly named contribution: "*The Mandatory Private Pension Pillar in Hungary: an Obituary*". In 1998, Hungary pioneered the privatization of pensions in Eastern Europe; the centre-left government employed the Chilean opt-out method, when the transfer to the so-called second pension pillar was only mandatory for new entrants to the labour market. The "voluntary" opt-out was exercised by 50% of the insureds, the employees with mandatory participation represented 25% of

all employees in 2000. This so-called second pension pillar did not work; the returns were insufficient, and for most it would have been preferable to be fully in the public pillar. The international crisis compounded the problem of financing the costs of transformation (privatization), which led the current conservative Hungarian government to the de facto nationalization of the second pillar. Hungary is a typical example of how not to make pension reforms and anti-reforms.

Petr Mach (University of Finance and Administration) introduced the flat-rate pension model. The so-called flat-rate pension is one of the concepts of the state pension system, under which the state provides only a relatively low basic pension, which does not take the past incomes of a taxpayer into account. Financial security above the minimum pension is left up to a person's voluntary decision. The pension system in the Czech Republic is largely reminiscent of a flat-rate pension, because the state pension is levelled out considerably and only takes peoples' above-average income into account to a very limited degree. Flat-rate pension is a realistic option for pension reform with a clear objective: to reduce the degree of state redistribution and reduce the demographic risks on the state system.

Jaroslav Šulc (Czech-Moravian Confederation of Trade Unions) presented a contribution titled "*The Myths and the Reality of the Current Stage of Discussions on the Pension Reform in the Czech Republic*". The basic principles on which Drábek's pension reform stand have one thing in common - it's always a combination of a fact that is beyond professional dispute and its very purposeful explanation. If the government manages to push through the model of pension reform preferred hitherto, all profit will be collected by private companies operating the second pillar. If the proposal to transform supplementary pension insurance to pension savings also passes next year, nothing will change materially, but operators will finally be rid of the present-day duty to use their own money to cover any potential loss and will obtain a legal claim to a profit. And, after all, that is what they wish to achieve in both phases of the reform. If this manner of pension reform is being talked about as a way to achieve long-term stabilization of public finances, it is a myth of monstrous macroeconomic dimensions.

Vaclav Vybíhal (The University of Finance and Administration) had, in the very title of his contribution, posed the question; Pension Funds - cui bono? The state vigorously supports supplementary pension insurance, spends billions of CZK every year de facto in the form of mandatory expenditure. But the state monitors with little intensity what sense and effectiveness its investment in this project has and how intensively supplementary pension insurance influences and forms citizens' "reasonable" standard of living in old age. V. Vybíhal quantifies the effects of supplementary pension insurance in favour of the pension participant, state expenditure on supplementary pension insurance and their structure and analyses, using an example of one of the pension funds, how pension benefits from supplementary pension insurance actually contribute to improving citizens' pension situation in old age. He suggests, based on the findings collected, that this product be obligatory for employers and that self-employed persons who opt for this product benefit from tax advantages. With regard to the average returns generated, the product in question is not profitable enough without state aid and is de facto unsellable.

The conference also included contributions by: **Jiří Šindelář** (Union of Financial Advisors and Advisories), who asked "*What is the Role of Financial Distribution in Pension Reform, or: What Route Will the Reform Take to Get to Citizens?*" **Jan Mertl** (University of Finance and Administration) focused on "*The Links between Financing the Pension and Health Care System*". **Martin Potůček** (Faculty of Social Sciences, Charles University) presented a contribution titled "*Twelve Question Marks Hanging Over the Planned Pension Reform*", in which he focuses on the nature of the discussions pertaining to the reforms, the "big" as well as the "small" pension reform, as well as the broader context of the pension reform and its justification by the government. **Juraj Draxler** (CEPS Brussels and Anglo-American University) made a presentation on "*Retirement Reforms: Lessons from Public Debate*", as part of which he focused on pensions as a public policy problem, and included the case study of Slovakia. **Rudolf F. Heidu** (University of Finance and Administration) spoke on the topic "*New Findings from the German Pension Reform*". **Jiří Šteg** (ProAlt) presented a contribution titled "*The Pension System – An Instrument of Power or One of the Pillars of the Cohesive State?*" **Vladislav Pavlát** (University of Finance and Administration) focused on social reform as envisaged by Prof. Josef Macek and the present situation. The contribution of **Herbert Heissler** and **Petr Wawrosz** (both from University of Finance and Administration) dealt with "*The Funded Pension System and Gross National Savings*".

The progress of the Czech pension reform is an example of the quality of Czech politics – with tripartite coalition government negotiations resulting in the drafting of bills which essentially have no support, not only among the parliamentary opposition but even among the professional public, or any part of the scientific spectrum in the Czech Republic. We therefore consider it appropriate to continue focusing on this topic as part of our series of scientific conferences. The date of the next conference is tentatively set for October 2012, at which we will be pleased to welcome the authors of scientific work in this area.

The unabridged text of most of the contributions and presentations is available in the compendium to the conference, published by VŠFS-EUPRESS; email: jana.siroka@vsfs.cz.

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Financial Markets Conference Has Brought a Number of Interesting Findings

Konference o finančních trzích přinesla řadu zajímavých poznatků

VLADISLAV PAVLÁT

On 1 – 2 June 2011, Vysoká škola finanční a správní, o.p.s. (University of Finance and Administration), in cooperation with the Czech National Bank (CNB), organized its already fifth international conference entitled "Financial markets and their regulation in the situation of a fading financial crisis".

Papers presented at the conference may be classified into three thematic groups: monetary policy issues, impacts of the crisis on financial markets, and issues associated with the financial market regulation.

Vladimír Tomšík, CNB Vice-Governor, analyzed various moments of the current financial stability development in his keynote speech entitled "*Monetary Policy and Financial Stability in the Czech Republic in 2011*". In the first part of the presentation, he addressed in detail the new macroeconomic outlook of the CNB as part of the macroeconomic environment analysis. The second part of the opening piece was dedicated to the analysis of the financial markets development in the Czech Republic. He stated, among others, that the share of nonperforming loans had stabilized in the nonfinancial enterprise segment in the past months, while slightly increasing in the household segment. Consumer loans are continuing their downfall. However, credit terms and conditions are improving. The tranquility on the monetary market confirms very low interest in liquidity within the existing supply facility of the CNB.

In spite of the partial recovery of the economy, increased risks to stability prevail in the euro area: there is a risk of an adverse loop forming between fiscal imbalances, economic growth, and financial sector; there are still concerns in respect of the banks' ability to acquire sufficient market funds to finance their activities in the years to come. Banks in the Czech Republic show a high ratio of deposits to loans (highest within the EU). Positive external assets of the bank sector confirm that the Czech banks are in the net creditor position vis-à-vis their parent banks in the Eurozone. Unlike in other countries of the Central and Eastern Europe, the Czech households have virtually no loans in foreign currencies. In January 2011, the capital adequacy amounted to 15.4% (Tier 1 capital adequacy of 14%). Capital resources of the Czech banking system are sufficient within the international comparison. Lowering of the capital cushion due to higher dividend payments in the light of expectations of restored economic growth could pose a risk.

Third part of the report are related to the issue of stress tests, with the presentation of two scenarios of future development in this area. The first scenario (identified as the Basic scenario) is derived from the official prediction of the CNB for February 2011. The second,

adverse scenario – labeled as "Unexpected recession" assumes sudden decrease in both domestic and foreign economic activity in the second half of 201 due to a foreign shock induced by another increase in the sovereign risk of indebted Eurozone countries. Should this scenario materialize, it would result in increasing uncertainty, risk aversion, exchange rate depreciation, and falling prices of government bonds.

Several other presentations addressed the monetary development issues. M. Hrnčíř ("*Will the Global Financial Crisis be a Division Line in the Monetary Policy Theory and Practice?*") focused on the development of theoretical opinions in respect of the interaction of monetary policy and financial stability as well as on the impact of the global financial crisis on the formation of approaches to monetary policy and its new form. These deliberations lead to a conclusion that price stability is and will continue to be a predominant monetary policy target in the medium term. A certain weight is newly given to the financial stability criterion; however, solely as a temporary switch to this modus in situations of exceptional risks to financial stability. There is a move away from a mere ex-post reaction (to clean) to ex-ante reactions within the process of increasing risks to financial stability (to lean against the wind).

K. Brůna ("*Monetary Policy and Absorption of the Banking Systems' Liquidity in Transition Economies*") sees the following attributes, among others, as the serious problems in the drawing on liquidity on the part of the banks during the financial crisis: liquidity absorption rate in respect of the growth dynamics of the currency in circulation, selected rate of the foreign exchange reserves sales with no impact on the exchange rate, costs of sterilizing excess liquidity, elimination of the state budget funding on the part of the central bank, and limitation of the minimum reserves volume increase due to an increase in primary deposits.

A number of the conference participants addressed various aspects of the global financial crisis, its impacts on the financial markets, on important financial institutions, as well as its implications for the Czech financial market. It has been confirmed, among others, that the impact of the global financial crisis on the banking market in the Czech Republic was not overly significant, even though it was associated with a certain decline in corporate credits due to a limitation of business activities (e.g. in the construction industry) as a result of the real economy crisis.

However, the financial crisis has had virtually no effects on the Czech insurance market. "In principle, the financial crisis has not affected the insurance market structure and quality; some impacts were brought about the ongoing economic/social crisis. The insurance as a whole grew during the crisis as well, and it is safe to assume this trend will also continue this year, i.e. in 2011. It is a vigorous market, with development potential both in respect of structure and quality." (V. Křivohlávek)

The analysis of the financial crisis impact on the payment system in the Czech Republic has resulted in a rather surprising outcome: it is apparent from statistical data that the financial crisis caused a decrease in the average volume of payment transactions; however, the number of transactions did not decrease. The aforementioned conclusion may be traced both in the area of domestic payment services as well as in the area of Eurozone countries.

One of the factors, which could contribute to the number of transactions remaining stable, is the fact that the number of card transactions did not go down during the financial crisis (O. Schlossberger).

The financial crisis, which naturally resulted in the increase of bank risks associated with the imminence of nonperforming corporate and consumer credits, stirred up the need for certain changes in the area of risk management: banks started to analyze in more details the risks of credit default. In this connection, the quality of credit registers has significantly improved; however, their importance was underestimated during the financial initial stages of the financial crisis: external data from the registers, which indicated an oncoming crisis, were ignored. The data were not even used as one of the possible indicators of a financial crisis. Consequently, data from the registers should not be underestimated or even ignored in the future. However, the role of credit registers has shifted as a result of the crisis – from a mere supplier of data to a provider of services with added value. The crisis contributed to an accelerated development and use of new products, such as portfolio monitoring, etc. (P. Kučera).

One of the factors limiting the burden of impacts of the financial crisis on the Czech economy included the measures applied by some of our government institutions, for example EGAP (Export Guarantee and Insurance Corporation). The measures of EGAP in support of export during the crisis had anti-cyclical effects, resulted in an increase of the government guarantee for the obligations of EGAP, strengthening of insurance funds by the government, expansion of insurance coverage, and reduction of insurance premiums for certain products. The promotion of Czech export brings twice the effect compared to Germany (M. Šimáček).

Global financial crisis has also contributed to a number of institutional changes on capital markets – namely in the area of securities exchanges. The formation of the so-called Multilateral Trading Facilities (MTF) introduced competition for stock exchanges, with pressure on the prices of stock exchange services, which – based on the FESE statistics – has resulted in the decline of transactions executed on regulated markets by more than one third since 2007. Regulated stock exchanges deal with this by forming their own MTF, more attention to communication with issuers, market education, as well as inspection quality. These changes have also affected the Prague Stock Exchange, among other by the fact that a central securities depository has finally been established in the Czech Republic. The establishment of a central securities depository with two-stage records has put the Czech Republic on par with other EU countries with standards, terms and conditions in the area of securities settlement (J. Opletal, H. Čacká).

One of the new facts, which have changed the Czech financial market, was highlighted by M. Knapp (OVB Allfinanz). It is the increased importance of financial consulting on the domestic retail market: the role of a financial advisor and agent on the retail market has been increasing, hand in hand with the requirements for technical and professional profile of a financial advisor. The financial consulting product structure has changed. It is necessary to distinguish more between non-commodity products, individualizing client's needs, and products that combine several aspects- i.e. combined actuarial and financial products.

Given the developments on the global financial market during the summer of 2011, it seems that those, who claim the financial crisis is not over, may in fact be right. The answer to the question of whether the financial crisis has actually faded away depends, among others, on the point of view in question. From the long-term perspective, it is certain that the economic evolution is changing: the knowledge society is being constituted, relying on the provision of productive services enabling the acquisition, retention, and use of human capital. This change is associated with the momentum shift in the perception of the evolution of society, with predominant investments in the social position to the detriment of investments in the development of skills. Game theory may be used to resolve partial crises, the occurrence of which can be expected. Game theory enables to see why people behave the way they do (R. Valenčík).

It is not a coincidence that **almost one fourth of all presentations related to the financial market regulation and supervision**. The common feature of the presentations in this area was a critical comparison of regulatory measures, which have already been applied, as a result of the global financial crisis, also in the Czech Republic, as well as measures, the introduction of which is under preparation as part of the effort to mitigate risks on the financial markets, thus preventing future crises.

It is worth mentioning that most speakers fear excessive emphasis on regulation, which – in their view – is already imminent in some segments of the Czech financial market. This is the case, for example, of Act no. 277/2009 Coll., on the Insurance industry; the preparation for an adoption of Solvency II brings significant danger of regulation, because it will result in the inception of a substantial number of regulatory measures (V. Přikryl, Ministry of Finance of the Czech Republic). It has been stated, among others, that the most regulated intermediary market on the Czech financial market is the insurance broker market (M. Voharčík).

One of the important motions of system nature is also the remark that principles known from the area of bank deposit insurance should not be mechanically extended to the area of securities investments. The pressure on accelerated adoption of new legislative measures from the EU level, and subsequently in the Czech Republic, without thorough assessment of implications of their adoption may have serious adverse effects for securities traders (J. Hart).

The need to respect specificities of various segments of the financial markets is an urgent requirement for further regulation of the insurance markets. For example, it is a problem that the draft amendment to Act no. 38/2004 Coll. contains a number of systemic changes, which had not been consulted in a sufficient manner and their potential impact had not been objectively assessed. The failure to respect or understand such specificities of the insurance sector may burden insurance companies and policy holders with excessive costs (J. Síkora).

L. Žalman (Raiffeisenbank) reiterated that periods of regulation tightening and deregulation have been taking turns in the history of bank regulation. It is a clash of two contradicting tendencies: even though regulation brings higher degree of security and promotes competition and competitiveness, deregulation reduces the costs of business activities

in the area of banking, promotes financial innovations and new products; however, at the same time, risks may increase. The analysis of the existing situation of the banking regulation leads to the finding that its tightening will lead to limited access to credit in the medium term. The banks' shareholders are not in for anything positive from the perspective of return on their investments. It seems that nobody has learned any lessons from the crisis. Some causes of the crisis (sovereign debts) are not being addressed. Overly detailed regulation is not beneficial – less would be more.

The current approach of the CNB to the preparation of further regulatory measures on both domestic and international level can be seen as a positive and promising fact. P. Vacek (CNB) stated in this regard that the CNB emphasizes the need of thorough testing of all proposals for further intended measures in order to prevent inadvertent adoption of regulation with unpredictable impacts; this also applies to the proposals prepared and currently discussed under Basel III.

With 110 participants, the course of this year's conference of the University of Finance may be seen as very successful, due to a significant interest on the part of academic employees of both public/private universities as well as on the part of prominent experts with practical experience in the given fields.

The symposium from this year's conference is published in the traditional printed form (A4 paper size), with an enclosed CD-ROM.

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XIV. International Scientific Conference on Human Capital and Investment in Education

XIV. mezinárodní vědecká konference Lidský kapitál a investice do vzdělání

RADIM VALENČÍK

The 14th year of the International Scientific Conference was held on 15 and 16 September 2011 in Prague. The conference was attended by 62 experts from the Czech Republic, Canada, Poland, Slovenia and the United Kingdom, and 26 papers were presented there. The discussion took place in English, and one of its objectives was a significant extension of the international cooperation on topics associated with the fairly demanding focus of the conference. This is also why an informal working session was scheduled for the first day. Its objective was to establish or extend a long-term international cooperation, as well as to focus attention on key moments of the conference's content focus for the maximum of knowledge to be utilised during the discussion on the keynote session day.

The opening paper by B. Šenkýřová (Rector, University of Finance and Administration, the Czech Republic), entitled *"Human Capital and Developing Skills"*, was concerned with the importance of the concept of university as a learning organisation, which can successfully compete with others on the basis of how the organisation as a whole as well as each individual operating there utilises the level achieved and learns to understand more comprehensively what is happening. The follow-up paper by P. Budinský (University of Finance and Administration, the Czech Republic), entitled *"Human Capital and Investment in Education – Analysis of 13 Years Theory Development, Opportunities and Barriers in Practice",* presented the University of Finance and Administration as a learning organisation amidst the development of the concept of conferences with the topic of human capital and investment in education, regularly held since 1998. It demonstrated in detail how the concept of the 14th year of the event grew out of knowledge acquired over the previous years. M. Kopicová (Former Minister of Education, Director of the National Training Fund and Vice-Chair of the Council for Research, Development and Innovation, the Czech Republic), in her paper entitled "***Education – Research – Innovation***. *How Not to Lose Dynamics of Past Decades*", showed and, using statistical data, documented the deterioration of the Czech Republic's competitiveness because of the country's poor focus on the formation of innovation potential. This unfavourable trend will be impossible to reverse unless the Czech Republic accomplishes its transition from the investment-driven economy to the economy driven by innovation, with such transition being one of the main objectives of research & development and higher education reforms, which have decelerated recently. An international team, composed of P. Matějů (the Czech Republic), H. Vossensteyn (the Netherlands), Tomáš Konečný (the Czech Republic) and S. Weidnerová (the Czech Republic), in its extensive paper entitled "*Student Financing, Opportunity Growth, and Equity in Access to Higher Education (A Czech-Dutch Comparative Study of Student Support Systems and their Effects on the Development of Inequity in Access to Higher Education*)", demonstrated that systematically introduced tuitions at higher education institutions, complete

with efficient financial aid systems for students, make high-quality education accessible to anyone, including students from socially disadvantaged families. A very detailed sociological analysis documented the above proposition by a comparison between the Czech Republic and the Netherlands. S. Barber and C. Oldfield (both from the UK) presented a paper on the societal context of acquiring and using human capital, entitled "*Amateur from Professional, Big Society from Stakeholder: Cameron's Austerity Britain snd New Limitations of the State*", which presented the above aspects of view of the developments in the United Kingdom over the recent decades in terms of the development of the relationship between professional state administration and civil society. The address by A. Aristovnik (Slovenia), entitled "*Relative Efficiency of Public Education and R&D Expenditures in the New EU Member States: Inter-Country Non-Parametric Approach*", provided a clearly arranged presentation of the original data acquired from the comparative analysis of new EU Member States (and Croatia) in respect of education and research. In his paper entitled entitled "*Education or (and) Professional Training*", V. Čechák (the Czech Republic) paid critical attention to certain topical issues of the higher education reform in the Czech Republic. The address by H. Heissler and P. Wawrosz (both from the Czech Republic), entitled "*Causes of Barriers in Investing into Human Capital*", raised the issue of the conflict of interests among various societal stakeholders in acquiring and using human capital and the impact of those conflicts on the preparation and implementation of reforms in the area concerned. In this context, it pointed out the possible application of the game theory in the relevant area. T. Dyczkowski (Poland), in his paper entitled "*Monitoring Impact and Performance of Non-Governmental Organisations. The Study on Polish Non-Profits Operating in Education and Health Care Sectors*", presented data that highlighted the role of the non-profit non-governmental sector in providing educational and healthcare services. The address by P. Pevcina (Slovenia), entitled "*Associational Life and Civic Community in the International Context*", took up the threads of the papers by S. Barber and C. Oldfield as well as the paper by T. Dyczkowski, and substantiated the importance of the increasing role of civil society in areas such as education and healthcare.

Further program took place in sections **Reforms in the Sectors that Generate and Maintain Human Capital, Role of Education in Society, Methods of Analysing Conflicts while Implementing the Reforms of Social Investment and Social Insurance Systems.** The discussion in the section about the methods of analysing conflicts while implementing reforms was very lively. It has been proven that plenty of various theoretical approaches exist but there are still significant differences between how theory views the reality of reforms and what actually happens. The discussions in all sections have indicated that the differences in the approaches to the social investment and social insurance reforms are due not only to the different situations in individual countries (with these differences not being huge as concerns major problems) but also (and probably most of all) due to the different traditions associated with the development of theoretical tools, their use in analysing the societal reality and the possibilities of applying the results of this analysis to practice. That said, both the development of theory and the use of international cooperation in respect of theory may be highly relevant. In spite of the significant differences in the approaches to the issues brought onto the agenda in the concept of the conference, the discussion led to the formulation of the following conclusions:

1. As far as theory is concerned, the expression "social investment and social insurance systems"[1] is legitimate, reflects the mutual interconnection of the education, healthcare and pension insurance systems, is associated with lifecycle issues, and shows an increasing production role (intermediated by human capital and social capital) of the social system in relation to the economic one.
2. The reform process in respect of social investment and social insurance systems is inherently associated with the existing development stage of the society, has similar features in all countries involved, is not a single change but, instead, is going to take place for a longer period of time, during which various corrections, conflicts and potential reversals will occur.
3. Education and investment in human capital will have the key and increasingly important roles in the process of the reforms of social investment and social insurance systems.
4. While implementing the reforms in the above areas, the individual countries are confronted not only with conflicts of interests between various interest groups but also with attempts at misusing the reforms for the benefit of private lobbies – this is where science should tackle an important task of developing and using appropriate instruments to conduct a theoretical analysis of this issue.
5. The non-profit sector and the civil society have an important role in acquiring and maintaining human capital by providing education and healthcare services; in a way, their mission contrasts with how the role of various lobbies is being promoted through the state administration even in education and healthcare.
6. The problems during the preparation and implementation of reforms of social investment and social insurance systems are very similar, in terms of their main features, in individual countries, and this opens up the possibilities for international cooperation in tackling those problems at the theoretical level, including the reflection of the application of the theoretical outcomes to practice.
7. Various forms of institutional and financial support are highly important for international cooperation, including those which allow for the involvement of students into scientific and research activities.

The conclusions of the discussion at the 14th year of the conference constitute the basis for the preparations of the 15th year of the event, to be held in the same or only slightly modified format on September 2012 The content and topics of the conference will be largely consistent with items 1-7 of the conclusions, including the addition of a section about the forms of institutional and financial support, making it possible to extend the international cooperation in the area concerned (such as the use of the ERASMUS programme in the involvement of students into international scientific cooperation in keeping with the harmonisation of teaching).

The real life in various countries is likely to produce enough evidence that the time relevance of the topics traditionally discussed at the Human Capital and Investment in Education conferences and gradually made more specific at those conferences, in line with the development of knowledge as well as societal events, has been growing and becoming a challenge for social science, which has to respond to that challenge.

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1 The term "social" has multiple meanings. In the context of using the expression "social investment and social insurance", it means the area which is the subject of investment and insurance.

Comments on item 4 of the conclusions were raised during the conference discussion as to whether such proposition is not too strong or exaggerated. Absolutely independently of the knowledge included in the **theoretical** analysis of the current developments, using instruments presented at the conference, the same views were also arrived at in the Annual Report of the Security Information Service of the Czech Republic (BIS) for 2010 (http://www.bis.cz/n/2011-09-07-vyrocni-zprava-2010.html), which, in section 1.2 Protection of Major Economic Interests, Administration of Public Assets, states: "*Certain private entities successfully influenced the legislative process. Lobby pressures targeted the legislation that addressed the regulation of gambling and power industry. Strong interest groups were able to enforce their objectives at all levels of the legislation creation process.*" That said, the situation in the Czech Republic is serious, indeed. Maybe this is why favourable conditions exist, just at present and not coincidentally in the Czech Republic, for a positive progress in the area brought into the agenda by the concept of the conference as concerns the scientific reflection of events in society, with such progress also being applicable on the international scale.

More detailed information can be downloaded from www.vsfs.cz/humancapital.

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Competition for Young Economists and Current Economic Problems of the Czech Republic and European Union

Soutěž pro mladé ekonomy a aktuální ekonomické problémy České republiky a Evropské unie

MOJMÍR HELÍSEK

In 2007, the University of Finance and Administration announced the Professor František Vencovský Prize. The prize is awarded to young economists under 35 years of age. This is a biannual prize announced by the rector of the University of Finance and Administration; this year, the prize was therefore awarded for the third time. Prof. Vencovský was a prominent Czech economist, an expert on monetary policy who worked at the central bank for many years.

The winners of the Professor František Vencovský Prize are traditionally announced during an international conference focusing on the issue of current economic problems. When held for the first time in 2007, the conference topic was the challenges that the economy faces from the globalizing world. The main speech was delivered by professor Samuel Peltzman of the University of Chicago. The second conference held in 2009 focused on the social security and pension reforms in the Czech Republic and in Europe. The main speaker was professor Nicholas Barr of the London School of Economics. The conferences are traditionally organized in cooperation with the Czech National Bank and are held under the auspices of the Bank's Governor, at the Congress Centre of the Czech National Bank. The theme of this year's conference was "The Czech and World Economies after the Global Financial Crisis." The conference held on 25 November 2011 boasted a massive attendance by the representatives of the professional public.

The opening speech for the conference by Bohuslava Šenkýřová, Rector of the University of Finance and Administration, emphasizing the importance of the conference for the exchange of information regarding the current economic issues. She also recalled the results of the previous Professor František Vencovský Prize Competitions, and the role the contest plays in the development of the economic science.

Miroslav Singer, Governor of the Czech National Bank, spoke about the dramatic economic situation in 2011, with weakening growth impulses and negative prospects in the solution of the euro area´s debt crisis. The financial crisis is not over, there are signs of another recession. There is only a limited space for fiscal expansion. In conclusion of his speech, M. Singer said that the main risk for the Czech Republic is the fact that its exports are vitally dependent on the German economy. The good news on the other hand is the stability of the Czech financial sector.

A main speech entitled *"The New Member States in the context of the European financial and economic crisis: differentiation and prospects"* was delivered by Michael Landesmann, Director of Research at The Vienna Institute for International Economic Studies (WIIW - Wiener Institut für Internationale Wirtschaftsvergleiche) and a professor of economics at the Johannes Kepler University in Linz. He especially pointed to the significant differences between the countries of Central and Eastern Europe, in terms of their current account deficits, payment balance and public debt. In this context, the Czech Republic shows very positive figures. According to M. Landesmann, it is not likely that the economy would return to the pre-crisis situation in the near future. The capital inflow has significantly declined and the region is seen as risky.

Speeches were also given by three popular Czech economists.

Petr Zahradník, Head of the European Union Office at the Česká spořitelna (Czech Savings Bank) and a member of the Czech National Economic Council, focused on the theme of *"The crisis in EU and euro area and its possible impacts on EU cohesion policy as a part of the multi-annual financial Framework"*. There are expectations that in connection the financial crisis will boost interest in cohesion fund resources. Net payers contributing to these funds will likely strengthen their control, thus tightening up the access to such financial resources.

Tomáš Sedláček, the chief macroeconomic strategist at the Československá obchodní banka (Czechoslovak Commercial Bank) and member of the Czech National Economic Council, and an author of the famous book entitled "Economics of Good and Evil" which became an economic best seller in the Czech Republic and was also published in the US, delivered a speech which he titled "Fiscal and monetary policy after(?) the crisis". Tomáš Sedláček believes that politicians should no longer be entitled to decide on fiscal policy and the creation of debts and that this should be the task for expert institution, like monetary policy. He proposed a fiscal rule entitled "constant 4": if for example GDP drops by -3% during the times of a recession, the public finance deficit may reach up to 7% relative to the GDP. On the other hand, during the period of expansion, with GDP growing by 6% for example, the public budget should constitute a 2% surplus.

Aleš Michl, an analyst in Raiffeisenbank, presented a paper entitled *"(Un)Competitiveness of Czech economy in the times of crisis"*. The European Union may in the future develop according to three scenarios. According to the first scenario, the EU will not respond to the competition challenges. Sophisticated industrial production will then be transferred outside the EU, for example to China, and the EU will face the risk of disintegration. The second scenario envisages the unification of the EU's fiscal policy (European bonds), with Germany holding the leading role. The third scenario presents a change in the euro area, which will be abandoned by some of its members - either the strong ones, such as Germany, or the weak ones, such as Greece.

The afternoon part of the conference was devoted to the winning contributions in the contest of young economists for the Professor František Vencovský Prize. A total of 11 contestants applied for the prize. The expert assessment was presented by Jan Frait. The nomination scientific committee decided to award five works.

The main prize of CZK 200,000 was divided between two works:

- The first work entitled *"Excessive Credit Growth and Countercyclical Capital Buffers in Basel III: An Empirical Evidence from Central and East European Countries"* was written by Adam Geršl and Jakub Seidler. It is the authors' intention to prove that the current proposals of banks' countercyclical capital buffers included in the upcoming Basel III regulation may not be beneficial for the countries of Central and Eastern Europe. The proposals do reflect neither the differences among individual countries, nor the specifics of economies converging to the EU economy.
- The second work entitled *"Information Frictions and Monetary Policy"* was written by Filip Matějka. It deals with the question of what information do people pay attention to and how can this be used in, for example, the creation of monetary policy, tax laws or in marketing. This approach is part of a broader "theory of rational inattention". Filip Matějka published an article on this topic, in cooperation with professor Christopher Sims, holder of the 2011 Nobel Prize for Economics.

The remaining three winning works were also awarded by prizes:

- Soňa Benecká, for her *"International reserves and the financial crisis: monetary policy matters"*,
- Václav Žďárek, the author of "*Testing the Relative PPP hypothesis in CEE States – does the 'PPP puzzle' still keep up?"*
- Jozef Baruník with his *"Can we improve understanding of the financial market dependencies in the crisis by their decomposition?"*.

The programme of this year's conference also included a film covering the story of young František Vencovský, entitled "The Art of Selling Motorcycles". This film, together with a short documentary entitled *"Six Pipes of František Vencovský"* shown during the previous conference, will be published on the website of the University of Finance and Administration.

The works of the winners of the Professor František Vencovský Prize will be published in the upcoming issues of the ACTA VŠFS magazine.

Please go to www.vsfs.cz/cena for more information regarding the contest, or log on www.vsfs.cz/konference to find more information about the conference.

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The Interesting New Monograph Published by the Slovakian NCEGS in 2010

Nová zajímavá monografie publikovaná slovenským NCEGS v roce 2010

VLADISLAV PAVLÁT

IVANIČKA, K. et al.: *Economic Aspects of Social Justice and Human Rights* (Ekonomické aspekty sociální spravedlnosti a lidských práv). Bratislava: Vydavatel´stvo EKONÓM, 2010, 494 s. ISBN 978-80-225-3004-0.

The monograph was prepared by the National Centre for European and Global Studies of the Slovak Republic (NCEGS), located at the University of Economics in Bratislava. Since 2009, the NCEGS – the head of which is Koloman Ivanička, one of the well-known Slovakian scientists – produced a considerable number of studies on field of social science, i. e. economics, finance, management, sociology etc.

The main aim of the Centre (as formulated in its Statute) is „to contribute through research, information dissemination and networking contacts to a dynamic and sustainable development of Slovakia and its regions in the context of ideas on global and European level". One of these tasks is fulfilled by presenting the results of scientific research.

The release of broadly designed series of interdisciplinary monographs was started by the Centre in 2009. *Economic Aspects of Social Justice and Human Rights* is the third volume of this series of monographs.

Let us briefly describe the main "parameters" of this monograph. Under the leadership of K. Ivanička - who is the editor of this volume – 22 recognized authors from Slovakia, Czech Republic, Germany and Norway were invited to present their papers. Their field of interest is a broad one, and many branches are represented as it was already mentioned. Several groups of papers can be recognized, however, the common unifying feature of different groups of contributions is the effort – as a result of the preceding analysis - to find feasible practical solutions for the development of Slovakian society and to spread this information to interested parties in Europe and the world.

There will be commentaries of 6 selected economic and financial topics, as they reflect topics frequently discussed by our academicians and students.

The future development of the world economy belongs to very important questions which are important both from the theoretical and practical reasons. Every country has to evaluate the probable tendencies of this development to be able to formulate and follow a realistic economic policy. The paper "*Possible Scenarios for the Future Development of World Economy*" (pp. 75-93) written by **Peter Stanek**, (senior scientific researcher at the Institute of Economic Research of the Slovakian Academy of Sciences) presents a critical review of social, economic etc. problems which burst out during the world financial crisis, and which are still unsolved: the problem of global consumption (and its structure) and the problem of wealth and poverty. He criticizes the attempts to mitigate these extremes by means of an isolated national economic policy applied by most countries during the world financial crises and shows that the middle class will be not able to take the lead

in the future as it was in the past. In the opinion of P. Stanek, existing traditional models cannot be applied for the development of the world economy, new models are not at disposal and nobody cares. The greatest challenge – in the opinion of P. Stanek - consists in finding out how an integrity between on-going social changes and the application of suitable economic tools and measures could be installed. The paper is based on different sources connected with The Millenium Project and different document of international organizations.

The paper "*Creative Economy – a Challenge for 21st Century*" written by ***Jitka Kloudová***, (Vice-Rector of the Pan European University in Bratislava) belongs to several inspiring papers of the reviewed monograph. "Creative economy" is a new trend in developed countries based on progress in science, art and culture. This is a sector with an enormous growth potential which can be used to create competitive advantage of Europe. The author draws an impressive picture of a new model of Europe´s prosperity. However, policy makers in Europe did not yet include this model into the framework of EU economic policy. In the author´s opinion this is a considerable mistake. It is most desirable to invest much more into science, education, culture and arts to be able to support the creativity which in turn will contribute to the rise of economic competitiveness of Europe and to a substantial rise of its living standard.

Sovereign funds are one of the new phenomenon which emerged towards the end of the last and at the beginnings of the new century. The significance of these funds mainly owned by governments of several countries undoubtedly during the last years was rising, however, there are still serious doubts about their utilization. The paper "*Sovereign Funds – to Change the Polarization of Wealth and Poverty in the World?*" is presented by two authors (***Iveta Pauhofová***, senior scientific researcher at the Institute of Economic Research of the Slovakian Academy of Sciences; ***Peter Cmorej*** – researcher at the same institute). The authors try to answer a very important question of unequal distribution of wealth which is closely connected with the future of the world economy. Importance of sovereign funds during the world financial crisis, characteristics of the main sovereign funds, their regional structure and sources of their economic power are described, and their investment strategy is evaluated. The sovereign funds could contribute to a real economic change in the present polarization of wealth in the world. Three scenarios could be applied: 1. Governments will "tighten the belts"; 2. Governments will continue the policy of enhancing the growth by state debt; 3. Countries owning sovereign funds will use them for their further economic growth which will create a new potential for social stability (and this – in turn – will contribute to diminishing of the polarization). The authors´ (rather surprisingly) propose to set up a single pension market within EU which will be able to concentrate huge financial volumes (as a substitute of sovereign funds). If this will not be done, Europe will be exposed to "the real threat of social destabilization especially in the lower performing EU states." (p. 144).

The paper „*The Euro at the Crossroads*" was written by ***Vladislav Bachár*** (prominent expert in financial policy in Slovakia, former banker and head of counsellors at the Ministry of Economy). The author deals with present monetary and fiscal problems of EU connected with Greece. The author describes the „genesis" of these problems, the origin of the Greek indebtedness, and discusses possible solutions. Although the situation – since the time when the paper was written, i. e. in June 2010 probably at the latest – changed, the author's sceptical views still are realistic and valid: uncertainty still prevail, the solution will

be - in spite of the already prescribed "calendar" drawn by EU - postponed to an undefined term in the future. This is, by the way, precisely what the author - one year ago - wrote.
The paper "*Institutional Monetary Setup of the Slovak Republic and the Comparison with Nordik Model*" is presented by ***Jana Kotlebová*** (teacher at the University of Economics in Bratislava). This interesting paper gives a brief, however, a surprisingly deep survey of Norwegian economy and central banking and its specific features, and further on, an analysis of the impact of the world financial crisis on monetary policy of the Norwegian central bank. This is the main intention of the paper. At the same time, a comparison of the development of the main macroeconomic indicators in Norway and the Slovak Republic is presented. At the first glance, a comparison of so different national economies seems to be inappropriate, but the author was able to find out common features characterising the different countries´ behaviour during the global crisis. Let us quote the author´s result of the analysis: "The autonomous monetary policy with fiscal policy objectives, aimed at equal aims, provides for Norway the chance to correct the potential problems of the Norwegian economy. At this stage of development, the euro area has basically nothing to offer." (p. 369) The final evaluation reminds me of the long-lasting Czech discussion on Euro which – for the time being – was closed with almost the same result. The paper is based on a wide range of selected basic documents, legal acts and reports.
The last reviewed paper brings an interesting trial to evaluate a potential application of the so called Nordic for EU. The paper "*The Inspiration of Nordic Model and Scandinavian Countries for Slovakia and Integrated Europe*" was written by ***Andrej Sokolík*** (former Extraordinary and Plenipotentiary Ambassador of the Slovak Republic to Norway and Iceland). An embracing description of the origin of the Nordic cooperation, its administrative structures and the scope of work enabled to the author - who had the opportunity to study these problems on the spot – to evaluate the advantages and disadvantages of the Scandinavian model. The author attempts to analyze a very delicate question: would it be possible to apply the positive features of the Nordic cooperation model into the Visegrad 4 group? His answer is brief and realistic: at present, no. But: if democratic principles (in a broad sense, such as the role of women in the society, the rights of minorities etc.) will be broadly applied in the future, there is a chance of utilizing the main principles of Nordic cooperation. The author concludes his reasoning by stressing the necessity to extend the ways of a democratic cooperation of the Visegrad 4 to Ukraine.
To conclude: the interdisciplinary approach to the choice of authors and papers enables the readers to get a comprehensive picture of different aspects of the main problem, i. e. the problem of social and human rights, and the significance of economic factor for the process of enlargement of these rights in Slovakia. This information is very substantial for Czech readers not only because of the common past, but primarily because of the present successful bilateral cooperation with the Slovak Republic and the multilateral cooperation within Visegrad 4. Armed with this information, Czech economists will be able to compare the development of both countries and draw on the Slovakian experience both in a positive and negative sense.

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PREVIEW /PŘIPRAVUJEME:

Next issue of the scientific reviewed journal ACTA VŠFS will include the winning papers of the competition for the young talented economists "Prof. F. Vencovský Prize", which was announced by the Rector of the University of Finance and Administration in spring 2011.

Následující číslo vědeckého recenzovaného časopisu ACTA VŠFS bude obsahovat zejména vítězné práce ze soutěže pro mladé ekonomy „Cena prof. Františka Vencovského", kterou vyhlásila rektorka Vysoké školy finanční a správní na jaře 2011.

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Instructions for authors:
The length of manuscripts, using the usual structure of research papers, is 15 – 20 PC pages (single spacing). Please submit the manuscripts in good English in electronic format together with a printed copy. Attached, submit the executive summary – abstract (150 words max.) and keywords (6 – 8), both also in Czech.

Please number your notes as you go along. Add a bibliography in alphabetical order, including page numbers when citing magazines or a journal. Inside the text, please use e.g. Afonso (2001), and when citing include the page number. Use the compatible forms for tables and figures. Highlight where pictures, graphs and tables will be placed in the text. Write your contact address: full name and titles, name and address of your work, telephone number and email, including the same for all co-authors.

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