FUTURE
OF BANKING

AFTER THE YEAR 2000

IN THE WORLD AND IN THE CZECH REPUBLIC

VIII

REGULATION AND SUPERVISION
OF THE CAPITAL MARKET

2003

KARVINÁ

SILESIAN UNIVERSITY OPAVA

SCHOOL OF BUSINESS ADMINISTRATION KARVINÁ

FUTURE OF BANKING

AFTER THE YEAR 2000

IN THE WORLD AND IN THE CZECH REPUBLIC

VIII

REGULATION AND SUPERVISION OF THE CAPITAL MARKET

PROCEEDINGS FROM THE INTERNATIONAL CONFERENCE

KARVINÁ 2003
THE CZECH REPUBLIC

Reviewers:

Ing. Monika Bialonczyková
Ing. Marek Dohnal
Ing. Karel Kořený
Ing. Stanislav Matuszek
Prof. RNDr. PhDr. Stanislav Polouček, CSc.
Ing. Michaela Roubíčková, Ph.D.
Ing. Petra Růčková, Ph.D.
Ing. Daniel Stavárek
RNDr. Jarmila Šlechtová
Ing. Ivo Veselý
Ing. Pavla Vodová

ISBN 80-7248-215-7

Arrangement and Revision of the Proceedings: Stanislav Polouček
Marek Dohnal

The proceedings have not been amended or proofread and editors are not responsible for english versions of papers.
Nebyla provedena jazyková korektura a editoři neodpovídají za obsah ani jazykovou stránku příspěvků.

International Program Committee:

Chairman: Prof. RNDr. PhDr. Stanislav Polouček, CSc.
Silesian University, School of Business Administration, Karviná

Members: Robert Balik, Ph.D.
Haworth College of Business, Western Michigan University, Kalamazoo, MI, U.S.A.

Prof. Ing. Alois Baran, DrSc.
Silesian University, School of Business Administration, Karviná

Prof. Dr. hab. Halina Henzel
Akademia Ekonomiczna, Katowice, Poland

Prof. Ing. Alžběta Jankovská, CSc.
University of Economics, Faculty of Economics, Bratislava, Slovak Republic

CONTENTS

INTRODUCTION

In October 2003, it was the eighth time that the International Conference, *Future of Banking after the Year 2000 in the World and in the Czech Republic,* took place at the School of Business Administration, Silesian University, in Karviná. Every year the conference focuses on a specific topic on developments of the banking and financial sector , and this year, the topic was *Regulation and Supervision of the Capital Market.*

The conference was introduced, like in the past years, by papers of our keynote speakers, Zdeněk Husták, Member of the Presidium of the Czech Securities Commission, Ivan Šramko, Deputy Governor of the Slovak National Bank, and Filip Mach, Manager of the WestLB branch in London. They focused on various aspects of regulation and supervision, and their presentations were warmly welcomed by the conference participants.

Zdeněk Husták gave a brief overview of the current financial market regulatory landscape and its evolution in the Czech Republic. Then he focused on the role of the Czech Securities Commission (CzSEC) regarding regulation and supervision, and he came up with the conclusion that its establishment in 1988 and its further development was a logical step in creating an institutional framework for regulating the capital market. He also outlined the basic approach of CzSEC regarding regulation and supervision as well as regulatory methods used. Legislation framework and supervisory independence was also underscored.

Ivan Šramko focused on basic changes in regulation and supervision development in Slovakia. While the development in Slovakia was nearly the same as in the Czech Republic in the first half of 90s, it differed later on. The Financial Market Authority played a more important role but starting 2006, all regulation and supervision of the financial system will be arranged by the Central Bank. The Deputy Governor also underlined the importance of independence as a basic principle for effective supervision. Independence, he explained, included legislative, personal and financial independence.

Filip Mach, a graduate of the School of Business Administration in Karviná, explained the influence of regulation and supervision from the opposite angle, that is, from the position of the manager responsible for dealing with capital markets. He focused on the January 2003 situation in Hungary and expressed the reaction of both traders and regulators during this period of increased pressure. He explained why the Hungarian forint was very attractive for investors and how the Hungarian Central Bank responded to the appreciation of the forint. On this basis, he explained the importance of a conceptual approach towards communicating regulatory strategies and keeping a close watch on the market every time.

In the afternoon and the following day, the registered participants were divided into two sections. The first one focused on *The Capital Market, Regulation and Supervision*, and the second on *The Capital Market and Corporate Financing*. More then 30 participants, including our foreign guests, presented their papers. After each

paper was read, there were very interesting and rich ideas that surfaced in the discussion afterwards. There was a supportive, working and friendly environment in both sections.

A vast majority of the papers presented at the Conference is included in this publication of Proceedings from this conference. They are also published on the University website in *www.opf.slu.cz/pb2000/sbornik2003*. The papers are classified according to content. The proceedings show viewpoints of the capital market regulation and supervision in the Czech Republic and all over the world in their development and their different prospects. Different views of the participants are reflected in various topics they focused on. Arguments, ideas and views are the main contribution of this conference, and hopefully, they will not only influence the practical scope of activities of bank management and staff, but also guide scientific research in universities of the Czech Republic and abroad, since these yearly conferences have been considered the "meeting place" of banking experts as well as academic and scientific specialists from universities around the world..

For the sixth year in a row, some graduates of the School of Business Administration of Silesian University took part in the conference. The School of Business Administration was founded in 1990, and today, nearly 2000 students study here. Most of the graduates who majored in Finance work mainly in the finance sector now. Some of them are already practicing in well-known banking, leasing, insurance, audit, and other financial firms and institutions. It was a great pleasure to have the opportunity to welcome one of our outstanding alumni, Filip Mach, as our guest speaker this year. We believe that we will meet more alumni at our next international conference in 2004.

We expect next year's conference, to take place on October 20-21, 2004. The Program Committee now has a difficult decision to make on which topics to choose for this upcoming affair. It is also starting to plan for the 10th anniversary conference in 2005 as well. Let us wish its members good luck and let us hope that next year's conference will again bring fruitful papers and rich discussions.

Stanislav Poloucek
School of Business Administration
Silesian University

Karvina, 30th November 2003

REGULATION OF CAPITAL MARKET IN THE CZECH REPUBLIC, STATUS AND ACTIVITY OF THE CZECH SECURITIES COMMISSION

Zdeněk Husták

Key words

supervision, regulation, capital market

1. Introduction

The aim of this presentation is to give a brief overview of current financial market regulatory landscape and its evolution and then focus on role, mission and goals of the capital market regulator in the Czech Republic (the Czech Securities Commission – the CzSEC). Also information on approach and regulatory methods currently used by the CzSEC will be given.

2. Development of Regulation and Supervision of the Czech Financial Market

The financial market in the Czech Republic was gradually established in beginning of 1990ies. The regulatory infrastructure developed in several phases but being stigmatised by unreasonable relaxed regime in its first years. Later, following the crisis in each of the sector of the financial market, rules tightened and regulatory infrastructure was built and legislation became more and more complex creating currently slightly more than eight of acts and about twenty decrees setting the rules for financial market, its participants and also for regulators.

The roots of regulation and supervision[1] of financial market can be found in the Ministry of Finance (MF). In the beginning of 90ies was Ministry of Finance (MF) sole authority responsible for supervision of the whole financial market.

First step in creating structured regulatory framework was separation of bank supervision from Ministry of Finance and its incorporation in the Czech National Bank.

[1]In this text, the term „Regulation“ is to be understood as setting the rules and standards (i.e. acts, decrees, recommendations and best practise standards). By the term „Supervision“ it is meant to cover inspections, enforcement, monitoring and surveillance.

During mid 90ies were established relatively distinguished departments within Ministry of Finance - Capital market supervision department and Supervision of insurance companies and pension funds department. First of these departments was given more independent position later although still within the walls of MF in 1997. Establishment of the Czech Securities Commission in 1998 as an independent capital market regulator was the only logical step further in creating an institutional framework for regulation of capital market.

Currently there are underway discussion and initial negotiations about integration of financial market regulators.

3. Institutional and Legal Framework of Regulation

Institutions of regulating and supervising of Czech capital market are the following: Czech National Bank, Czech Securities Commission, Ministry of Finance, Ministry of Labour and Social Affairs and also Credit Union Supervisory Authority.

3.1 Czech National Bank

CNB has competencies of administration authority in the extent stipulated by the law[2]. CNB is empowered to issue secondary legislation (decrees) to regulate issues in its competency. Further, it is in charge of supervision of banks, foreign exchange operations and payment systems operators.

3.2 Ministry of Finance

MF is central body of state administration for area of financial market with exception supervision of capital market in the extent of entrusted to the Czech Securities Commission. MF is responsible for primary legislation for financial market. MF is empowered to issue secondary legislation regulating financial market[3] in area of insurance, pension funds, credit unions and marginally in an area of capital market where main decreemaking powers are in hands of the CzSEC.

[2] Act on CNB, Act on banks, Foreign exchange act and Act on payment systems

[3] In the area of insurance industry there is one decree No 75/2000 Coll. which executes Act on insurance industry and approximately 7 notifications of Ministry of Finance. In the area of pension funds there is currently no regulation issued (Ministry of Finance can issue an decree about providing state contribution and to the matter of evidence of participants in pension fund). In the area of credit unions there were 4 executory regulations. There are 4 decrees to Act on securities and 1 decree to Act on investment companies and investment funds issued by MF.

Several acts[4] give MF power to supervise insurance companies and pension funds.

3.3 Ministry of Labour and Social Affairs

Discourses to establishment of new pension funds and to changes of pension plans of pension funds.[5]

4. Coordination of Activities of CNB, the CzSEC and MF of Financial Market Regulatory Framework

Following the issue of Act on CzSEC in 1998 there was signed the agreement among the CzSEC, CNB and MF on coordination and collaboration in supervising the financial market.

The agreement was replaced in 2003 by new one, which set more profound basis for exchange of information and for supervision over (consolidated) financial groups.

Generally collaboration among these institutions lays in exchange of information on regulated (authorised) entities, findings in investigation, data from financial market monitoring, information of new licences issued etc., coordination of inspections and administrative procedures and also coordination of methodological and regulatory work.

5. Czech Securities Commission

The CzSEC is an independent administrative body for regulation and supervision of capital market. It is financed fully from state budget. The CzSEC is entitled to issue secondary legislation (decrees) to regulate issues in its competency – with certain exceptions when decree is issued by MF[6].

The CzSEC administers state supervision over investment firms (brokers/dealers), tied (investment) agents, collective investment, securities issuers, public markets, clearing houses, Securities Centre (Středisko cenných papírů), and

[4] Act on insurance and Act on supplementary pension insurance

[5] Act which stipulates supervision authority of Ministry of Labour and Social Affairs is Act on supplementary pension insurance

[6] In fact such decree is prepared by the CzSEC and MF plays role in legislative process as its coordinator. MF issues decree on non-banking brokerage houses‘ capital adequacy. Decree on details of coverage of mortgage debenture has not been issued yet. Decree on valuation of assets in unit trust or investment fund.

investment activities of pension funds. There are several pieces of legislation which entrust regulatory and supervisory powers to CzSEC.[7]

5.1 Competencies of the CzSEC

- Administration of state supervision;
- decisions on rights and interests, which are protected by the law;
- supervision of disclosure duty of regulated entities, insider dealing, take-over bids, acquisition of listed companies, public offerings of securities;
- decisions on licences and registrations, administration of approvals;
- inspection authority;
- authority to impose remedies and sanctions, to suspend or withdraw licence.

6. Mission and Goals Activities of CzSEC

6.1 Mission

The mission of the CzSEC can be summed up in following four points:

- contribution to development and protection of capital market;
- reduction of system risks;
- reduction of probability of failure of supervised entities;
- does not guarantee zero-failure regime.

The CzSEC shall contribute to the capital market development and protection within its legal competence. The CzSEC´s strategic objective is to eliminate systemic risk and the failure probability of the regulated system and subjects operating within it to a maximum extent. The CzSEC's activities need to be based on real and feasible objectives and priorities, and it must strictly act in accordance with its competence and jurisdiction. At the same time it is not possible to omit the fact that to prevent single licensed entity from failure and to remove all risk connected with business and investing on the capital market to a full extent is not and cannot be the CSC's objective and a

[7] Acts which stipulate supervision authority of CzSEC are Act on Commission, Act on securities, Act on investment companies and investment funds, Act on supplementary pension insurance with state contribution, Act on stock exchange and Act on bonds.

purpose of the regulation. Also the regulation and the supervision can never replace the investigative, prosecuting and adjudicating bodies' actions (court, police…), as well as the responsibility of the management of regulated entities, especially administering customers/investors assets. Investments businesses' management has to be motivated to control risks resulting from the capital market activities while disposing of entrusted assets.

6.2 Goals of Activity of the Czech SEC

A. Investor Protection

One of the fundamental objectives of the Commission is investor protection. The key risks threatening the investors include the following:

Risk of failure of statutory bodies and firm management
This represents risk that the firm may default e.g. due to insufficient internal controls or due to incompetent management or insufficient capital resources of the firm.

Risk of fraud
A risk of fraud, misrepresentation of information (e.g. financial results), or risk of incorrect disclosure of relevant information on the part of firms that sell or provide advice with regard to the capital market instruments.

Risk of unsuitable service offered/misselling
A risk that investor signs a contract for a financial product/instrument or service that does not understand or that is unsuitable for him.

Risk of loss of value of an investment
A risk that an investment will fail to perform in predicted way and bring the desired yield.

B. Transparency of the Financial Market Include:

Preventing information asymmetry, ensuring availability of relevant information for investors, ad hoc publicity and regular disclosure duty.

C. Fighting Financial Crimes Include:

This goal is intended to be achieved by certain preventative measures, setting standards and best practise rules, administrative enforcement in areas such Money laundering Fraud and unfair conduct, including electronic financial crime and fraudulent marketing Criminal conduct on the financial market, including insider trading; and Misrepresentation of information or financial reports/statements.

D. Preparation of Czech Capital Market for Integration in Structures of European Union

This goal consist especially of ensuring the implementation of EU legislation, methodological work and collaboration on setting the best practice rules compatible with EU standards for regulated entities. Also planning and putting in place organisational and technical measures necessary for smooth entering single market.

E. Education of Investors

This is a particularly important part of activity. Efforts to increase literacy of public were long underestimated and only recently several educational programmes have been launched. Many investors, mainly small ones, lack a good understanding of the financial market, and products and services offered, while they are not aware of risks inherent to investing on the financial market. This might lead to make inappropriate investments and inadequate expectations. Such investor may put their money into instruments that in fact do not match their intentions. A conservative investor, considerably risk averse, may then purchase, for example, risky instruments of e.g. a derivative or illiquid non-listed shares which are difficult to value. Investors might fail to correctly understand the terms and conditions on which the investment instruments are offered, and may even fail to be sufficiently aware of all the pros and cons applicable to the offers of various instruments. As part of the above objective, the CzSEC will therefore strive to achieve two goals - an increase the public financial literacy; and the ensuring of access to quality information for the general public on the entities operating on the capital market.

Financial literacy of public is going to be improved through education programmes that will assist individuals in acquiring the necessary knowledge of the capital market. According to the latter goal, the Commission will provide or assist other parties in the provision of the core information and advice to investors (such as "the Ten commandments of an investor" ("Desatero investora") when investing in securities). The CzSEC will continue its effort to improve standard of the information currently provided and enhance generally the information services already furnished by it, including its website information, its assistance line (hot line), and also the publication of a list of firms offering their services without a proper licence (the so-called "black list").

The CzSEC will also pay attention to fill gaps in the extent of information, or in the awareness of small investors (e.g. by publishing brochures and leaflets). This improved level of public information that then serves as a vehicle for achieving the key objective, i.e. investor protection. Public education is to be accomplished through advertising financial education as an integral part of the system of education (knowledge of capital market fundamentals should be included in the syllabuses of secondary schools) and through other media.

F. Support of Issuing Activities of Local Entities

In the forthcoming period, the CzSEC will therefore concentrate on educating investors and issuers (new IPO). For various reasons, Czech companies have not so far showed any interest in raising funds through initial offerings. Among the reasons are in

particular the historically explained credit ties between businesses and banks, as well as mistrust in the Czech capital market. Taking into account of risks of supervised activities and entities.

7. Approach of the Commission to Regulation

The CzSEC follows principles of regulation set by IOSCO[8]:

- management has the primary responsibility;
- regulatory requirements must be adequate;
- regulation should provide support to market development and financial innovations (new services and products);
- the services, which are provided, must follow standards of EU legislation;
- regulator's resources must be used efficiently and economically.

The CzSEC in its regulatory and supervisory business endeavours to:

- increase of transparency of the capital market;
- improve market participants conduct;
- be proactive in all of its regulatory a and supervisory actions;
- increase efficiency of regulation and supervision.

To achieve better these targets the CzSEC gradually implements so called Risk based supervision.

8. Supervisory Methods Applied by the CzSEC

There can be distinguished two basic methods used to regulate financial market and its institutions – the Rules of conduct in relation to markets and investors and the Rules of prudential regulation.

[8] International Organisation of Securities Commissions, IOSCO Objectives and Principles of Securities Regulation 2003

The method used by the CzSEC generally is conduct of business and market abuse prevention. This represents a regulation of treatment of third party's money i.e. how an investment firm/collective investment body/securities issuer manages assets of clients/investors, discloses information offers and/or sells its services, products, securities. It is not observed if investment is returned. Key issues are disclosure, fair treatment and prevention of information asymmetry. On the other hand supervision of banks and insurance companies regulates how the assets of these institutions are invested and its purpose is ensuring a stability of these institutions and ability to fulfil commitments to depositors/insured – these goals are to be achieved by setting of rules of prudential regulation, licensing rules and especially capital adequacy rules. In recent years these regulatory methods are not applied in their "pure form" and financial market regulators combine both of them.

9. Tools Which are Used in Regulation and Supervision

- Investor-oriented tools;
- tools oriented on individual market participants;
- tools oriented on the capital market as a whole.

A. Investor Oriented Tools

Investor education and improved public information include a long-term Commission project (e.g. improved understanding of the capital market and one's own capital needs by the public, performed through seminars etc.) and alerts specifically oriented on certain risks (e.g. whether the investors have a better understanding of the benefits and risks of certain product types, such as derivatives etc.). The education of well-informed investors should reduce the need for regulation of firms, but this will take some time.

Provision of information by regulated entities - The Commission will require market participants to provide better and clearer information on the products, procedures applied at trading and on instruments, while it may generally assist investors in realising what they are buying and how to make the best decisions.

Complaint handling systems - The systems will provide an option for investors to make complaints about firms and to ensure remedy where needed. They are also an important source of information for the Commission with respect to market participant conduct, while also reinforcing investor trust.

Remedial measures and penalties - If the Commission, during its supervisory activities, detects a breach of obligations committed by a market participant, it is authorised to impose remedial measures or penalties within its statutory powers under the Commission Act. The penalty tools of the Commission include assessment of fines and even withdrawal of the service provision licence. The Commission will continue to proceed in

accordance with the prepared internal penalty manual in order to maintain the continuity and equal treatment at imposition of penalties for breaches of law.

Compensation scheme (Brokerage Houses' Guarantee Fund) - The Guarantee Fund represents yet another element of the regulatory system in that it provides a "safety net" for investors in case a brokerage house collapses. Consequently, this enables the reasonable operation of market regulation and the alleviation of the impact of firm collapses on investors. The Commission will promote a change to legislation with the aim of improving the functionality of the institute.

Press releases - Public statements by the Commission (e.g. on traders offering their services without a licence) may alert the public and market participants as a whole to specific risks and as a result influence their conduct.

B. Tools Oriented on Individual Market Participants

The other set of regulation tools is intended to influence the conduct of separate service providers, i.e. brokerage houses, market organisers etc. The tools include the following:

Licensing of firms and prior approvals - The goal of performing a review at market entry will only enable the entry of firms and individuals that fulfil the necessary criteria (including fair conduct, competency and financial reliability) and thus to participate in the regulated activity. The experience of the advanced markets and elsewhere suggests that regulation objectives are more easily achievable through setting down and adhering to the rules of entry than through dealing with subsequent problems. The Commission can also penalise all entities that operate on the capital market without a relevant licence.

Supervision of firms, including on-site inspections - Supervision of an individual regulated entity provides an opportunity for the Commission to monitor, identify and address the risks specific to the market participant. In addition to monitoring participant activities, the Commission will proceed in accordance with the Inspection Activities Plan and perform on-site reviews of market participants.

Information on regulated entities (regular and ad hoc disclosure) - An analysis of information on supervised entity may draw attention to certain problems of market participants which, when evaluated, may signal various risks (e.g. an insufficient capital adequacy).

Defined rules - The rules set down the regulatory standards for the financial industry. Setting the rules is an indispensable element among the regulatory tools of the Commission, as it lays down best practise standards as obligatory and enforceable. However, the rules increase costs for the firms, as well as the cost of monitoring for the Commission, so the value of their benefit should always also be considered from this perspective. Too many rules may result in an excessively restrictive and red tape laden system. The Commission will ensure that both licensed firms and investors have available a clear explanation of the market conduct rules.

Market monitoring - Certain local and international activities may be indicative of future problems (or threats) faced by certain type of regulated entities or a group of investors. A study of market events or products (such as examination of prices, or information on transactions, or monitoring complaints about firms or their products) may also point to future problems and allow them to be avoided through a timely response. Also, information from listed securities issuers provides a material source for correct investment decisions by investors and, therefore, it must be available to the whole market in a timely way, undistorted and complete.

10. Conclusion

The financial market in the Czech republic was gradually established in beginning of 1990ies. The regulatory infrastructure developed in several phases but being stigmatised by unreasonable relaxed regime in its first years. Later, following the crisis in each of the sector of the financial market, rules tightened and regulatory infrastructure was built and legislation became more and more complex creating currently slightly more than eight acts and about twenty decrees setting the rules for financial market, its participants and also for regulators. During mid 90ies relatively distinguished departments within Ministry of Finance were established - Capital market supervision department and Supervision of insurance companies and pension funds department. First of these departments was given more independent position later although still within the walls of MF in 1997. Establishment of the Czech Securities Commission in 1998 as an independent capital market regulator was the only logical step further in creating an institutional framework for regulation of capital market.

Abstract

Příspěvek se zabývá východisky pro regulaci kapitálového trhu v České republice, postavením a činností Komise pro cenné papíry.
Úvodem sleduje vývoj regulace a dozoru kapitálového trhu v ČR od počátku 90. let do současnosti a věnuje se vzájemné koordinaci, činnostem a zákonům, které vymezují činnost České národní banky, Ministerstva financí, Ministerstva práce a sociálních věcí a Úřadu pro dohled nad družstevními záložnami jako regulátorů na českém kapitálovém trhu.
Dále příspěvek přináší informace o působnosti a pravomocech Komise pro cenné papíry, včetně právního rámce, který její činnost upravuje. V příspěvku jsou také sledovány poslání a cíle činnosti Komise pro cenné papíry, což zahrnuje také přístup Komise k regulaci a dozorové metody a nástroje využívané Komisí.

References

[1] About the Commission – Czech Securities Commission, (www.sec.cz).

[2] IOSCO Objectives and Principles of Securities Regulation 2003, IOSCO 2003 (www.iosco.org).

[3] Reasonable expectations: Regulation in a non-zero failure world – Financial Services Authority, September 2003 (www.fsa.gov.uk).

[4] The firm risk assessment framework – Financial Services Authority, February 2003, ISBN 0117040657 (www.fsa.gov.uk).

CAPITAL MARKETS: TRADING vs. REGULATION

Filip Mach

Key words

regulation, capital market, currency market, trader´s motivation, national bank

1. Introduction

Aim of this paper is to show on example interactions of both traders and regulaters during periods of incresed pressures. I wanted to concentrate namely on need of conceptional approach towards comunicating regulator's strategies and close interactions with the market at every time.

I will talk about the currency market, which differs slightly from the capital markets and it's regulators in one aspect. That is acitve participating of it's regulator in market transactions at stressed times. On the other hand the rule setting role remains. So the currency market regulators have strong influence on the market at most of the times.

An example, I chose, is from January 2003, from Hungary. Where there was a strong and concentrated investment flow from internatinal investing community. But all started little earlier then that. So lets move back in time to the 3rd week of October 2002.

2. Description of the Economic Enviroment

In the 3rd week of October there was repeated Irish referendum, about so called Nice Treaty. This was last obstacle in the way of the Central and Eastern European Countries to join EU and subsequently the common currency EUR. On the trading desks of international banks and hedge funds this was long awaited signal for increasing existing or putting on new bets on interest rates to converge to the EUR levels and Eastern European Currencies to strenghten closer to Purchasing Power Parities.

Most attractive currencies to take bets on were HUF, PLN and SKK. After the Irish said yes for the entry of the new economies, each of these currencies appreciated. Hungarian forint, only currency from that group is tied to a trading band. It's boundaries are set by Hungarian National bank to +/-15% from the central parity. In order to keep the currency inside the band Hungarian Central bank is obliged to interviene at either side of the band.

At the beginning of the year 2003 it was obvious that market won't be able to absorb amount of EUR, that the international investors were pouring into the country. As a consequence of that the national bank had to start to intervene on the 15th of January to keep the currency inside the band, above 234,66 Huf for EUR. They bought about 5.3 bio EUR during 2 days (more then 50 pct of their existing reserves). For support of their interventions they cut twice rates and restricted access to 14 days sterilization facility. In the end they managed to defend the band and got the currency weaker. Many people got hurt. In London alone the amount of marked to market loses was estimated at arround 500 mio EUR level on Thursday the 17th of January. On top of that HUF currency market got destabilized for a month. And NBH had to give up their fight with high inflation for that month.

Was the 500 million EUR worth the challange? Was it possible to prevent this situation? What was the role of the regulators (National bank and Ministery of Finance) in the whole process? Is it better to relay on the foreign investors or restructure ones public finance? That are the questions I want to explore with you in next couple of minutes.

3. Trader's Motivations

As I wrote before, the main attraction in Hungary is that the country decided to enter the European Union, which brings along a lot of fundamental changes in the economy and potentially reduces the risk of holding their currency, therefore increases it's price (decreases the exchange rate against the EUR).

Next obvious reason is the high level of the interest rates, which attracts the real money investors (investment and pension funds) from countries with lower interest rate level. In Hungary's case mainly from Germany, Austria and even from the Czech Republic, as the interest rates converged to EUR earlier then in Hungary. These funds tend to buy Government Bonds in high yielding environments at fairly constant rate as they are getting money from their mainly small private investors.

Somehow interesting was the existence of the trading band and obligation of the national bank to defend it by intervening on the market. This increases liquidity of the market to almost infinite amounts. So EUR amounts which would have been transacted in several days under normal market circumstances could have traded within 1 minute with Hungarian bank with access to the national bank intervention facility.

On the other hand there was a couple of risks too. Strong FDI inflow from the second half of the 90's is quietly drying up in Hungary. Even more. Towards the end of year 2002 there were signs that some technology companies like IBM or Philips were willing to leave Hungary for cheaper countries with even lower labour costs. Especially China.

The most important risk was the budgetary problems and big salary growth in the public sector. These two intertwined factors were still feeding Hungarian inflation the most. The budget deficit in 2002 increased to 9.4% of GDP from 4.1% in 2001.

If we take all these factors into consideration. We can easily put it that the EUR convergence investment funds demanding Hungarian high yielding government bonds are indirectly encouraging the Hungarian government to borrow more. And as we can see from rising budget deficits it is really difficult to resist. Somewhere inbetween steps the national bank in. So lets have a look at their role.

4. NBH Steps in

The way most market participients try understand the behaviour and intentions of the national bank, it's listening or reading what they say or write in the media. There is lot of public occurences of people involved in decision making process in any national bank. So for illustration I went through Reuters news service and chose some of the announcments and reaction's from analysts, they received.

At the time when it was obvious that it doesn't take long for the currency to reach the border of the band, there was a Monetary Policy Comitee Meeting. MPC decided to keep the rates at it's 8.50 pct level. On Wednesday the 15th of January Governor of the National Bank of Hungary Zsigmond Jarai was in Vienna attending a conference and to group of journalist he voiced that there was two main reasons why they didn't cut the rates on Monday, last MPC meeting before then: There is pressure from oil prices and at the same time budget deficit widened dramatically between 2001 and 2002. The day before in Hungarian Daily Nepsabadsag, he said that strong HUF currency helps the National bank to keep the inflation low.

On the 15th the market broke the level for official intervention. The National Bank of Hungary by law had to start buying EUR to defend the band. After the intervention hours NBH announced that they also cut rates by 100 bp. For some of the investors it was a signal, that they should buy their EUR back and the first market reaction was to sell forint. But in about 10 minutes from the announcement market was again on the lower border of the band, as more market players didn't want to give up.

Market analysts expected that the NBH will intervene and revise their policy of currency band, because they believed that strong currency helps the Hungaarian economy in long run. On the market there were expectations of amount of the intervention in about several hundreds million to 1 billion EUR. NBH published later the exact figure of 908 million EUR. The rate cut was also widely expected on the market. For illustration take a look at the attached graph of the yield curve before the decision on the 10th. At the same time, what the national bank did would be natural reaction of any national bank to try to lessen the speed of appreciation of their currency.

The language of the national bank changed, after they had to interviene. Now it wasn't policy of strong HUF, but they started to call the big HUF purchase speculative attack on the currency.

The market got a message, that the national bank actually doesn't necessarily do what they say. Even more people now thought that the national bank showed that the desire to keep the currency within the trading band might not be strong. That the

National bank wants to intervene to slow down the appreciation of the forint. Overall this reaction was rather encouraging for the market players, because when the trading opened the next day, market bought HUF for unbelievable sum of 4.371 bio EUR. And it was National bank turn to react.

It wasn't easy time for the national bank now. For illustration I will repeat the pressures the National bank was under at that time. Mainly international market players pushed for the currency band to be removed or officially revalued. At the time only the National Bank knew how serious interest there was on the buying side. And there was the economy which showed high inflation expectations and state budget with its ever growing pressures on the expenditure side. There was also quite strong exporters loby with their desire for weaker HUF.

Shortly after 3 o'clock (closing time of the market operation) they announced their verdict. The trading band stays where it is, they cut interest rates by another 100 Basis Points and they restrict access into their short term depo facility at 6.50 pct. So most of the funds were transacted at their Overnight deposit rate 3 pct lower.

Their decision had devastating consequecies on both currency and money markets with HUF. On the first picture we can see the currency fluctuations in the second day of the intervention. Between 3 o'clock and 5 o'clock London time currency devalued from 234.66 to 250 (6.5 pct).

After this month long consolidation on both currency and money marketsstarted.

Figure 1 - Hungarian yield curves after the Irish referendum, before and after the intervention and after the consolidation

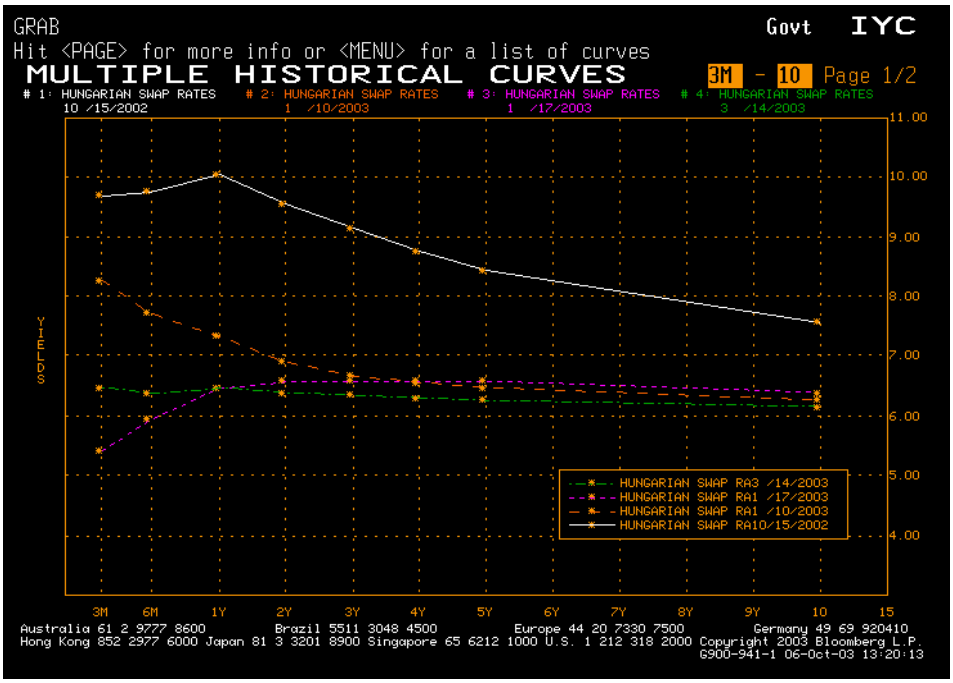


Figure 2 - Development of the EUR/HUF prior the intervention and after

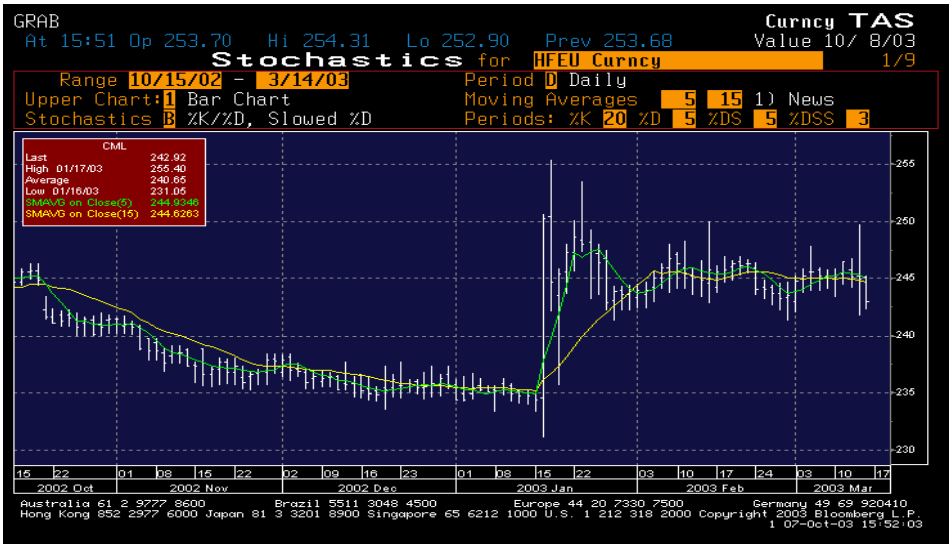
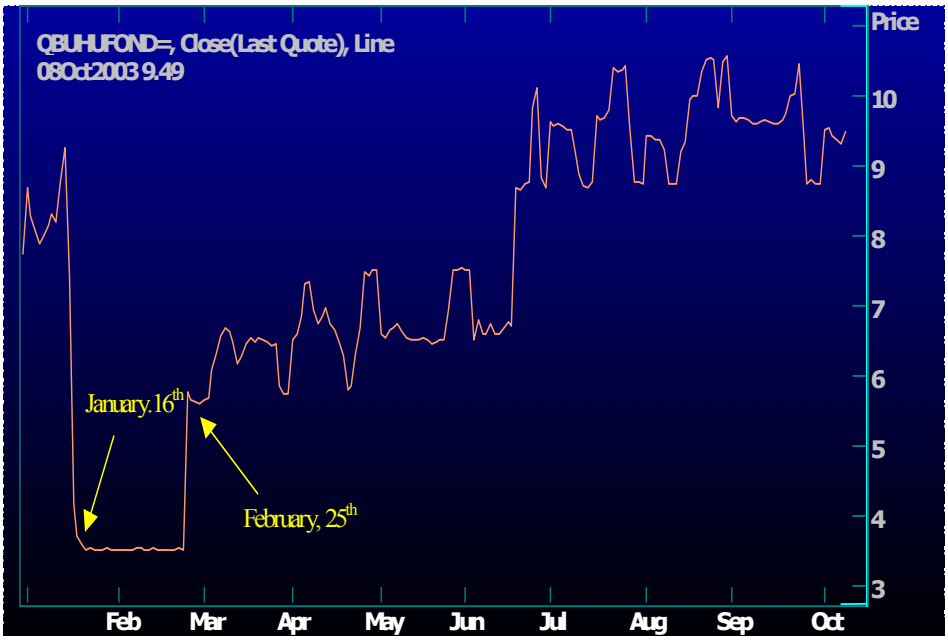


Figure 3 - The HUF O/N rate after imposing the restriction on amounts traded in 14 days deposit facility



5. Conclusion

The NBH was in position when they wanted the market to consolidate very quickly. So as their own report is saying they employed several methods of interventions to buy the HUF currency back and sell their EUR. So they were able to sell about three quarters of their purchased EUR, before they restored their instrumential framework (eg. started to accept full amount of 14 days depo facility on the 24th of February). By that time also the currency and bond market were functioning smoothly again.

43 billion HUF, which the national bank gained on the whole transaction should funny enough help their ailing state budget in the year 2006.

But most of the traders and analyst were left perplexed. What is it exactly what the National bank and MPC want? Is it strong or weak currency? Is it low inflation? Is it low budget deficit or easy financing while keeping rates high and attractive to the foreign investors?

Those are the question the NBH and MPC have to answer first to themselves.

Abstract

Cílem příspěvku je ukázat na příkladu vzájemné působení obchodníků a regulátorů v obdobích zvýšeného tlaku. Zvláštní pozornost je věnovaná především potřebě koncepčního přístupu ke komunikační strategii regulátora a úzké vazbě na trh. Příspěvek pojednává o devizovém trhu, který se mírně odlišuje od kapitálového trhu a jeho regulátorů. Jedná se o aktivní spolupodílení jeho regulátora na tržních transakcích v napjatých situacích, z čehož vyplývá, že regulátoři devizového trhu mají většinu času silný vliv na trh. Příspěvek je zaměřen na očekávání obchodníků a na reakci a chování regulátorů v Maďarsku během napjatého devizového obchodování v oblasti nižší hranice měnového pásma na jaře 2003.

References

[1] *Bloomberg*.

[2] *Coping with the speculative attack against the forint's band*, Gyula Barabas, Budapest, May 2003 (http://english.mnb.hu/dokumentumok/back2003_3.pdf).

[3] *Emerging Debt Strategy from November 2*0, 2002 and January 29, 2003 by WestLB Research.

[4] *Reuters news service*.

CAPITAL MARKETS, REGULATIONS AND SUPERVISION

SUPERVISION AND REGULATION OF FINANCIAL MARKETS AND INSTITUTIONS IN EMERGING COUNTRIES: A REVIEW

Robert J. Balik

Key words

crisis, asymmetric information, adverse selection, moral hazard, free rider

1. Introduction

During the past decade, financial crises have been a common occurrence in emerging and/or transition countries with devastating consequences for their economies. For example, the financial crises that struck

1. Mexico in 1994;
2. East Asian countries in 1997;
3. Russia in 1998;
4. Ecuador in 1999;
5. Argentina in 2001 – 2002;
6. and Turkey in 2001 – 2002;

lead to a significant fall in the growth rate of Gross Domestic Product (GDP), to a sharp increases in poverty, and to political instability.

Given these harmful effects and increased frequency of financial crises in emerging market countries in recent years, an issue that is now high on the agenda of policy makers throughout the world is the creation of supervision and regulatory policies to prevent theses crises.

A financial system performs the essential function of channeling funds to those individuals or firms that have productive investment opportunities. To do this well, participants in financial markets must be able to make accurate judgments about which investment opportunities are more or less creditworthy.

2. Some Basics

According to Mishkin (2000 and 2001) a financial crises is a disruption of financial markets in which adverse selection and moral hazard become much worse, so

that financial markets are unable to efficiently channel funds to those who have the most productive investment opportunities.

The financial system is critical to the health of the economy because it performs the essential function in an economy of channeling funds from savings to those individuals or firms that have productive investment opportunities. If the financial system does not perform this role well, then the economy cannot operate efficiently and economic growth is severely hampered. A crucial impediment to the efficient functioning of the financial system is asymmetric information, a situation in which one party to a financial contract has much less accurate information than the other party. For example borrowers who take out loans usually have better information about the potential returns and risks associated with the investment projects they plan to undertake than lenders do. Asymmetric information leads to two basic problems in the financial system: adverse selection and moral hazard.

Adverse selection is an asymmetric information problem that occurs before the transaction occurs because lower quality borrowers with higher credit risk are the ones who are most willing to take out a loan or pay the highest interest rate. Thus, the parties who are the most likely to produce an undesirable (adverse) outcome are most likely to be selected. For example, those who are poor credit risks are likely to be the most eager to take out a loan and pay a high interest rate because they know that they are unlikely to pay it back. Since adverse selection makes it more likely that loans might be made to bad credit risks, lenders may decide not to make any loans even though there are good credit risks in the marketplace. This outcome is a feature of the classic "lemons problem." analysis first described by Akerlof (1970). Minimizing the adverse selection problem requires that lenders must screen good from bad credit risks.

Moral hazard occurs after the transaction takes place because the lender is subjected to the hazard that the borrower has incentives to engage in activities that are undesirable from the lender's point of view. That is, engages in activities that make it less likely that the loan will be paid back. Moral hazard occurs because a borrower has incentives to shift into projects with high risk in which the borrower does well if the project succeeds but the lender bears most of the loss if the project fails. Also, the borrower has incentives to misallocate funds for her own personal use, to shirk and just not work very hard, or to undertake investment in unprofitable projects that increase power or stature. The conflict of interest between the borrower and lender stemming from moral hazard implies that many lenders will decide that they would rather not make loans, so that lending and investment will be at suboptimal levels.

Asymmetric information is clearly not the only source of moral hazard. Moral hazard can also occur because high enforcement costs might make it too costly for the lender to prevent moral hazard even when the lender is fully informed about the borrower's activities.

In order to minimize the moral hazard problem, lenders must impose restrictions (restrictive covenants) and other contract terms on borrowers so that borrowers do not engage in behavior that makes it less likely that they can pay back the loan; then lender's must monitor the borrower's activities and enforce the restrictive covenants if the borrower violates them.

Another concept that is very important in understanding the impediments to a well functioning financial system is the so called free rider problem. The free rider problem occurs because people who do not spend resources on collecting information can still take advantage of (take a free ride off) the information that other people have collected. The free rider problem is particularly important in securities markets. If some investors acquire information that tells them which securities are undervalued and then buy these securities, other investors who have not paid for this information may be able to buy right along with the well informed investors. If enough free riding investors can do this, the increased demand for the undervalued securities causes their low price to be bid up to reflect the securities' full net present value given this information. As a result of all these free riders, investors who have acquired information will no longer be able to earn the entire increase in the value of the security arising from this additional information. The weakened ability of private firms to profit from producing information will mean that less information is produced in securities markets, so that the adverse selection problem, in which overvalued securities are those most often offered for sale, is more likely to be an impediment to a well functioning securities market. More importantly, the free rider problem makes it less likely that securities markets will act to reduce incentives to commit moral hazard.

3. Preventing Financial Crises

According to Mishkin (2001) financial policies to prevent financial crises must consider:

1. prudential supervision;
2. accounting and disclosure requirements;
3. legal and judicial systems;
4. market based discipline;
5. allow entry of foreign banks;
6. minimize the use of capital controls;
7. reduction of the role of state-owned financial institutions;
8. restrictions on foreign denominated debt;
9. elimination of too-big-to-fail in the corporate sector;
10. sequencing financial liberalization;
11. use monetary policy as a tool for price stability;
12. do not attempt to control exchange rates.

And six factors needed to promote prudential supervision are:

1. prompt corrective action, regulatory forbearance, which leaves insolvent institutions operating, is disastrous because it dramatically increases moral hazard incentives to take on excessive risk because an operating but insolvent institution has almost nothing to lose by taking colossal risks;

2. focus on risk management;

3. adequate resources and statutory authority for prudential regulators/supervisors;

4. independence of regulatory/supervisory agencies;

5. accountability of supervisors;

6. restrictions on connected lending.

4. Country Risk Exposure (Probability of a Crisis) and How to Reduce it

Well-functioning financial markets carry out many tasks: the transfer of value over time borrowing-lending), across borders and industries, the facilitation of payments, the fragmentation of large-size investment projects. An important latent function of financial markets is to provide timely information: on the expectations of economic agents and on the value of the economy's assets. But perhaps the foremost function financial markets perform is the transfer or allocation risk among different actors: young people, for instance, tend to be better equipped in taking risk than old people. Given a total amount of risk in the economy, financial markets and financial institutions contribute to its distribution among different actors in a way that better fits individual preferences or conditions.

A country's exposure to risk (or financial crisis), at any given point in time, results from the risk exposure of each sector in the economy and from the transmission of risk across sectors through financial guarantees. Understanding how a sector's exposure changes when events hit a different sector, and realizing that exposure to risk changes non-linearly, is the main benefit of the financial guarantees approach. The approach suggests a new way of thinking at macro risk: describe the economy as a set of interconnected portfolios of assets, liabilities and contingent claims and ask how the values of these portfolios react to external shocks (shocks to fundamentals). To correctly appreciate the extent of a government's exposure to its financial system, three steps are involved:

1. the traded and non-traded assets of financial institutions, banks in particular, should be systematically marked to market: this is the first step to correctly evaluate the dimension of any existing guarantee;

2. the guarantees extended to financial institutions, whether explicit or implicit, should be openly recognized in the government's balance sheet. Rather than precise rules for governments to consider adopting, we frame a general orientation towards helping markets appreciate the extent of the guarantees;

3. a government's exposure to its domestic financial institutions—incurred through the outstanding guarantees to these institutions—explicit or implicit—increases more than proportionately with changes in the weakness of the balance sheet of these institutions. The additional liability transferred on the government's balance sheet by a 10 percent shock to the capital of firms is larger the lower is that capital to start with. If the balance sheets of corporations and financial institutions are weak when the economy is weak—as

it is generally the case—then it is precisely when tax revenue is low, and the cost of debt service high because sovereign risk has increased, that the value of the guarantees will be particularly high. This observation offers a powerful argument for diversification of the government exposure to local shocks, for instance by swapping tax revenue.

Governments can use modern financial engineering to measure and manage country risk. Diversification through capital mobility is one obvious alternative. Financial markets allow a country to diversify its exposure to specific sectors, while exploiting its comparative advantage. Taiwan, for instance, could trade domestic stock ownership of its domestic electronics firms for a world-diversified portfolio of equities. Singapore, through the Government Investment Corporation and related funds, appears to have taken significant steps to diversify through foreign securities holdings. In general, however, this solution runs against at least three obstacles: it is inflexible (once done, deep foreign ownership of domestic shares is not easily reversed or changed); it creates incentive problems, as fear of expropriation of foreigner-held shares in domestic firms is always a possibility; it often runs against local political constraints such as the belief that the country's "best" assets were sold to foreigners at too low a price.

Swap contracts and other derivative instruments provide an appealing alternative. Swaps allow a country to diversify risk without shifting the ownership of assets. For example, a country could impose tight capital controls, limit foreign ownership of domestic firms and still reduce its exposure to risk: swap contracts do not require the transfer of ownership of the underlying asset. Risk diversification through derivative instruments is obviously more flexible than diversification through the transfer of assets.

Discussions of the role of derivatives and their risks, as well as discussions of financial risks in general, often fail to distinguish between risks taken consciously and ones that are not. To understand the breeding conditions for financial crises the prime source of concern is not risk per se, but the unintended, or unanticipated accumulation of risks by individuals, institutions or governments including the concealing of risks from stakeholders and overseers of those entities.

Analyses of recent international financial crises recognize that the implicit guarantees governments extend to banks and corporations create the potential to greatly weaken their balance sheets. The attention, however, has mostly focused on the reasons why such guarantees exist, rather than on measurement of the exposures they create. This approach offers a framework for measuring the extent of a government's exposure to risk and how that exposure changes over time.

Country risk exposures can be controlled, hedged and transferred through the use of derivatives, swap contracts, and other contractual agreements. In emerging-market economies the domestic financial market typically allows limited diversification of risks. Internal diversification through industrial policy can be inefficient and costly to reverse. In such a situation, diversification through international capital mobility is the obvious alternative. However, the transfer across borders of the ownership of real and financial assets is only one way to achieve diversification, and it too can be costly to implement and even more costly to reverse. Frequently the implementation of these

approaches to diversification conflicts with political objectives and constraints. Over-the-Counter (OTC) derivative contracts provide an appealing, non-invasive alternative way to transfer risk. Equity swaps, executed on a large scale, allow a country to diversify risk without shifting the ownership of assets or otherwise disturbing the domestic financial practices.

5. Role of Law in Financial Crises

Securities laws matter because they reduce the costs of private contracting and litigation rather than provide for public regulatory enforcement. When we try to understand specifically what works in securities laws, we find that several aspects of public enforcement, such as having an independent and/or focused regulator or criminal sanctions, do not matter. In contrast, both extensive disclosure requirements and a simple procedure to facilitate investor recovery of losses are associated with larger stock markets.

At the more general level, these results illustrate the theory of optimal institutions in Djankov et al. (2003), which maintains that optimal intervention is shaped by the tradeoff between the costs of market and government failure. For the case of securities markets, the evidence suggests that the efficient institutional choice takes the form of private enforcement of public rules, which encourages private recovery of damages by investors harmed by promoters. Other markets may call for less government intervention, still others for heavier regulation. Generally speaking, it will take an empirical approach to understand what institutions are efficient in a specific environment. In this respect, the analysis confirms the view that efficient institutional arrangements vary across activities, and minimize total transaction costs, including both those of market and government failure.

An examination by Djankov et al. (2003) of securities laws on stock market development in 49 countries finds almost no evidence that public enforcement benefits stock markets, and strong evidence that laws facilitating private enforcement through disclosure and liability rules benefit stock markets.

6. Deposit Insurance

A review of the empirical research in Demirguc-Kunt and Kane (2002) indicates that officials in many countries should close their ears to the siren call of explicit deposit insurance. In institutionally weak environments, it is hard to design deposit-insurance arrangements that will not increase the probability and depth of future banking crises. Although government officials might reasonably believe that deposit insurance helps to develop a robust financial system, they must understand that deposit insurance can do this only in an economy whose contracting environment offers reliable institutions of loss control. For countries with weak institutions, adopting explicit deposit insurance promises to spur financial development only in the very short run, if at all. Over longer periods, it is more likely to undermine market discipline in ways that

reduce bank solvency, destroy real economic capital, increase financial fragility and deter financial development. This policy advice is disturbing because many of the countries recently adopting explicit deposit insurance are known to have poor contracting environments. For countries that have installed or are in the process of adopting explicit deposit-insurance schemes, cross-country empirical research offers lessons about program design. Even in favorable circumstances, deposit insurance impacts financial fragility by reducing the degree of private market discipline that banks experience. Appropriate design features must be included to control and offset these effects.

A first step in the design of deposit insurance is to set enforceable coverage limits to ensure that large depositors, subordinated debt holders, and other banks understand that their funds are truly and inescapably at risk. Exposure to loss carries an incentive to monitor and police the risk-taking behavior of banks and their government financial regulators. It seems particularly appropriate to avoid insuring interbank deposits -- since such coverage would discourage banks from monitoring one another. Providing strong incentives for private parties to remain vigilant is critically important in weak contracting environments where private monitoring must overcome weaknesses in official supervision. Coinsurance and related private loss-sharing arrangements such as subordinated debt and extended stockholder liability sharpen these incentives. Requiring compulsory membership in the deposit insurance system for financial institutions increases the size of the insurance pool and prevents low-risk institutions from selecting out of the system. This too encourages solvent and well-managed banks to help officials to monitor and police high-flying institutions.

These two features illustrate a recurring theme: that, especially in weak contracting environments, it is vital for insurers to assign private parties a substantial role in loss control. This principle extends even to the identity of deposit-insurance managers. Empirical evidence indicates that deposit insurance schemes that involve the private sector in their day-to-day management more effectively control moral hazard and financial fragility. This argues for a tiered private and government management scheme. Having both sectors responsible for overseeing the effects of the scheme offers checks and balances that improve management performance.

Additionally, although it may seem counterintuitive, the cross-country evidence indicates that countries establishing deposit insurance do better with a small pool of explicit liquid reserves than with a large one. In weak institutional environments, a large fund appears to intensify moral hazard by leading depositors and other counterparties to respond too weakly to accumulating evidence of individual bank insolvencies. As a result, whatever the level of pre funding, it seldom turns out to be large enough to absorb the unrecorded costs that weak and insolvent clients succeed in shifting onto these reserves before their insolvencies are addressed. The danger that a small pool of reserves poses is that the lack of liquid resources might delay authorities from dealing with insolvent institutions in a timely manner. But liquidity can be assured in other ways. The liquidity of an unfunded deposit insurance enterprise can derive instead from an unfettered line of credit with the national treasury, from reinsurance contracts written with reliable outside insurers, and from the power to collect special assessments from its client base.

Whether or not substantial reserves are held, it must be made clear that funds that ultimately cover bank losses will come principally from surviving banks. Taxpayer assistance should be expected only in the special case of a verifiable systemic crisis. Convincing the banking industry that it cannot routinely dump insurance losses on taxpayers will encourage healthy banks to support high-quality regulation and to monitor other banks. Conversely, to the extent that emergency funding is expected to be provided from government revenues, market discipline is compromised and financial fragility increased.

Depending on its design, deposit insurance is neither always good nor always bad. It can be a useful part of a country's overall system of bank regulation and financial markets. The research summarized here by no means implies that all countries with explicit systems should close them down at the first opportunity. Rather the research focuses attention on the need to identify and foster institutional prerequisites before adopting deposit insurance and to make a concerted effort to design and continually re-adapt the system appropriately. Like any strong medicine, users must ensure that the side effects of the prescription are not worse than the course of the disease they intend to treat

Figure 1 shows the how the number of countries with explicit deposit insurance has expanded over time. The 1990s saw a rapid spread in the transitional countries of central and Eastern Europe -- perhaps partly motivated by their long-term interest in joining the European Union - and in some African countries.. As Table 1 indicates a number of countries adopted or expanded their deposit insurance scheme during crises; for example, Thailand, Malaysia, and Korea all created such programs between 1996 and 1998. Countries that adopted deposit insurance in 1999 are Ecuador, El Salvador, and as part of the Central African Currency Union, Cameroon, Central African Republic, Chad, Equatorial Guinea, Gabon, and Republic of Congo.

One key feature of deposit insurance is its coverage limits, which refers to how large the deposits are guaranteed by the program. As can be seen in Table 2, account coverage varies from unlimited guarantees to tight coverage limits. On one end of the spectrum, Columbia, Ecuador, Indonesia, Japan, Korea, Malaysia, Mexico, Thailand and Turkey promise 100 percent depositor coverage. One way to standardize the coverage ratio across countries is to divide the amount by per capita GDP. By this measure, many high-income countries fall at the other end of the spectrum, extending deposit insurance only to amounts that are equal to or less than their per capita GDP. Examples are Austria, Belgium, Denmark, Finland, Germany, Netherlands, Portugal, Spain, Sweden, Switzerland, and United Kingdom. Some developing countries such as Chile, Gabon and Lebanon also follow this example. Compared to the relatively modest protection in high-income countries, some of the poorest countries offer very generous protection going well beyond the scale of the deposits owned by the poor. For example, Cameroon, Central African Republic, Chad, Oman, Peru, which are countries that have established deposit insurance in recent years, have coverage ratios that exceed eight. However, the very low level of average income in countries like Chad needs to be kept in mind to put their coverage in perspective. Besides setting a maximum level of coverage, some countries insist that accountholders "coinsure" a proportion of their deposit balances. Coinsurance means that depositors are contractually required to bear a share of their bank’s accrued losses when their bank fails. One common form of

coinsurance is for the insurer to cover a fixed fraction of the deposited amount. Coinsurance provisions are still relatively rare. In the World Bank database, only 17 of the 71 countries with explicit deposit insurance have coinsurance. However, coinsurance has become more frequent in recently adopted deposit insurance schemes. For example, 13 of the 17 countries with coinsurance provisions have either adopted deposit insurance for the first time or substantially revised their systems since 1995, including Austria, Estonia, Germany, Gibraltar, Iceland, Ireland, Lithuania, Macedonia, Oman, Poland, Portugal, United Kingdom.

In recent years there have been efforts to make these deposit insurance premiums sensitive to the risk exposure of the bank. Indeed, 21 countries now use some form of risk-based deposit insurance premium, including Argentina, Bulgaria, Italy, Hungary, Nigeria, Peru, Sweden, Turkey, and the United States. A typical mechanism countries use to determine risk-based deposit insurance premiums is to impose an additional insurance charge which is determined as a percentage of the bank's nonperforming loans.

Abstract

Během posledního desetiletí se v rozvíjejících a tranzitivních zemích zcela běžně vyskytovaly finanční krize a měly zničující důsledky na jejich ekonomiky. Finanční krize vedly k markantnímu propadu v růstu hrubého domácího produktu, k ostrému růstu chudoby a k politické nestabilitě. Vzhledem k těmto škodlivým jevům a narůstající četnosti finančních krizí v zemích s rozvíjejícími se trhy v poslední době, je nutné vytvořit dohled a regulační politiku k prevenci těchto krizí.

References

[1] AKERLOLF, G. The Market for Lemons: Quality Uncertainty and the Market Mechanism. *Quarterly Journal of Economics*, 1970, Vol 84, pp 488 - 500.

[2] DEMIRGÜÇ-KUNT, A., KANE, E. J. Deposit Insurance Around the Globe: Where Does It Work? *World Bank Economic Review*, 2003, Vol. 16, pp 66 - 93.

[3] DEMIRGÜÇ-KUNT, A., TOLGA, S. Deposit Insurance Around the World: A Database. *World Bank Economic Review*, 2002, Vol. 15, pp 88-103.

[4] DJANKOV, S., GLAESER E., LA PORTA, R., LOPEZ-de-SILANES, F., SHLEIFER, A. The New Comparative Economics. *Journal of Comparative Economics*, 2003.

[5] DRAGHI, M., GIAVAZZI, F., MERTON, R. C. Transparency, Risk Management, and International Financial Fragility. *National Bureau Economic Research*, Working Papers, June 2003, No. 9806.

[6] GORTON, G., WINTON, A. Financial Intermediation, University of Pennsylvania, Warton School, *Working Paper Series*, March 2002.

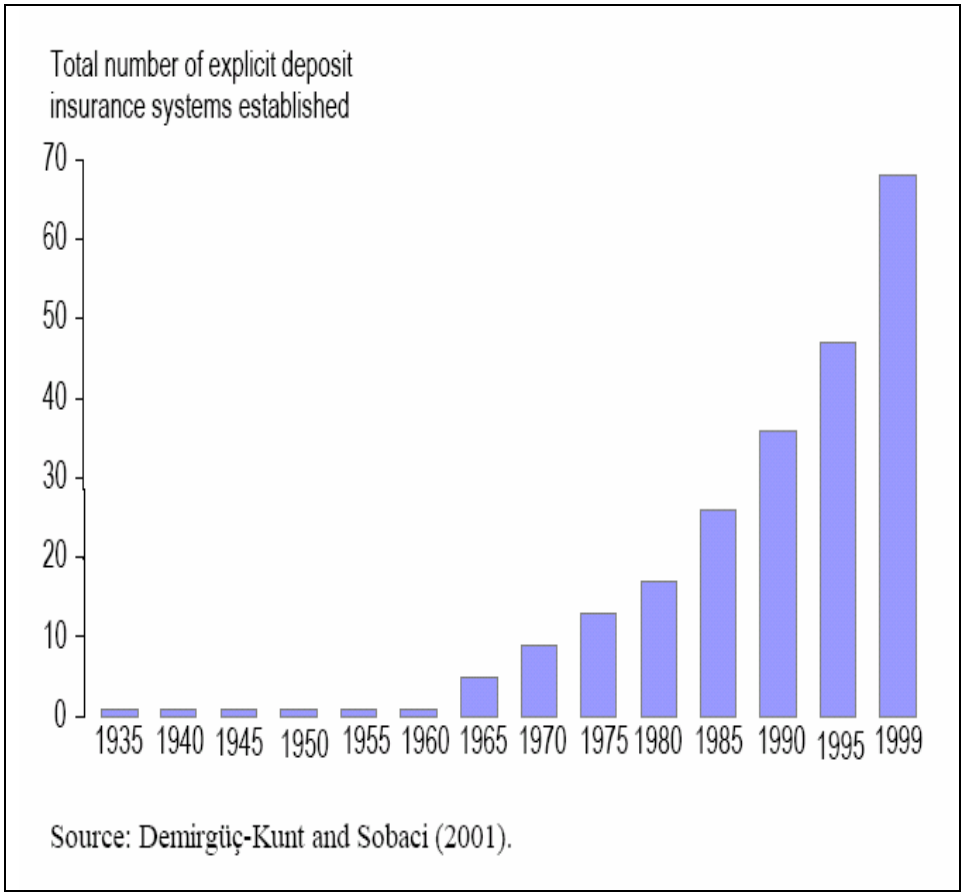
[7] LA PORTA, R., LOPEZ-de-SILANES, F., SHLEIFER, A. Government Ownership of Banks. *National Bureau Economic Research*, Working Papers, March 2000, No. 7602.

[8] LA PORTA, R., LOPEZ-de-SILANES, F., SHLEIFER, A. What Works in Securities Laws? *National Bureau Economic Research*, Working Papers, July 2003, No. 9882.

[9] MISHKIN, F. S. Financial Policies and the Prevention of Financial Crises in Emerging Market Countries. *National Bureau Economic Research*, Working Papers, January 2001, No. 8087.

[10] MISHKIN, F. S. Prudential Supervision: Why it is important and what are the issues? *National Bureau Economic Research*, Working Papers, September 2000, No. 7926.

Figure 1 - The rise of deposit insurance around the world, 1934-99



Source: Demirgüç-Kunt and Sobaci (2001).

Table 1 - Recent Establishment/Revision of Deposit Insurance Schemes

Year Adopted or Revised	Countries that have established an explicit scheme	Countries that have revised their existing scheme
1999	Cameroon, Central African Republic, Chad, Ecuador, El Salvador, Equatorial Guinea,Gabon, Republic of Congo	
1998	Estonia, Gibraltar, Indonesia*, Jamaica, Latvia, Malaysia*, Ukraine	Denmark, Finland, Germany
1997	Croatia, Thailand*	
1996	Korea, Lithuania, Macedonia, Romania, Slovak Republic, Sweden	Austria, Iceland, Italy, Spain
1995	Brazil, Bulgaria, Oman, Poland	Argentina, Belgium, France, Greece, Ireland, Netherlands, Portugal, United Kingdom

* Blanket coverage

Source: Demirgüç-Kunt and Sobaci (2001).

Table 2 - Deposit Insurance Coverage Levels

Coverage Ratio (Coverage limit/GDP per capita)	
0-1	Austria, Bahrain, Belgium, Bulgaria, Chile, Denmark, Estonia, Finland, Gabon, Germany, Hungary, Iceland, Ireland, Latvia, Lebanon, Luxemburg, Macedonia, Netherlands, Poland, Portugal, Spain, Sweden, Switzerland, Ukraine, United Kingdom
2	Canada, Colombia, Czech Republic, El Salvador, Greece, Jamaica, Lithuania, Nigeria, Romania, Slovak Republic, Sri Lanka, Tanzania, Trinidad & Tobago, Venezuela
3-5	Argentina, Brazil, Croatia, Equatoria Guinea, France, Kenya, Philippines, Republic of Congo, Taiwán, United States
6-8	Bangladesh, Dominican Republic, India, Italy, Norway, Uganda
9-15	Cameroon, Oman, Peru, Central African Republic, Chad
Full	Colombia (until 2001 then 2), Ecuador (until 2001), Indonesia, Japan (until March 2001), Korea (until 2000), Malaysia, Mexico (until 2005), Thailand, Turkey

Source: Demirgüç-Kunt and Sobaci (2001).

FINANCIAL MARKETS REGULATION AND SUPERVISION: IS IT COMPLEX?[1]

Stanislav Polouček

Key words

financial system oversight, regulation, supervision, rules, incentives, stability, asymmetric information, moral hazard, efficiency, optimal framework of regulation and supervision, links between regulation and supervision, independence

1. Introduction

Disputes about efficiency of regulation and supervision became a very discussed topic nowadays. The sheer size of banks poses a number of problems. Despite the broad acceptance of continuous changes in the financial system, globalisation and amalgamations demand serious changes in regulation and supervision. And yet, no agreement about the practical features of such a framework of regulation and supervision has been reached either on the political level or the economic theoretical level. From the economic point of view the very concept of regulation and supervision is in itself one of the key issues together with various links between regulation and supervision. Prospective recommendations for the regulation and supervision framework, and searching for an optimal framework for regulation and supervision, can be made based on these concepts.

2. Concept of Regulation and Supervision

The approach to regulation and supervision is not unique in economic theory. On one hand we hear views fully refusing regulation and supervision and demanding to let the capital market be regulated by market forces. But on the other hand there are views demanding a very strict and detailed regulation, including governmental activities in the financial sector in order to guarantee stability and retain a certain competition in the private sector (for instance, a „risk-free“ retail market so that small savers can feel protected, or another example would be settlement and payment systems guaranteed by government so that markets have confidence in the fundamental system of transactions).

[1] The paper is published with the support of the Czech Grant Agency (grant GAČR No. 402/02/1408 “Comparison of the Financial Markets Development in the Czech Republic and in the European Union”).

If we put aside these more or less extreme views, most economists today would come to the conclusion that regulation and supervision of financial markets is necessary and that the goal of regulation and supervision should be the minimisation of asymmetric information and moral hazards as well as creating conditions for the stability of the financial system. Greater emphasis given to the market forces finds its reflection in the fact that legislation and rules set by the regulator should be an incentive for the regulated bodies' behaviour. The incentive for them is to follow behaviour that is in harmony with legislation, including ethical rules (equality, justice and fairness).

In everyday life and even in Economics literature, the difference between regulation and supervision does not attract a lot of attention. Nevertheless, despite the fact that the terms are not the same, it is important to distinguish between them from the theoretical as well as the practical point of view.

Under "regulation" we usually understand it as rules set by legislators as well as by other legally authorised bodies (subordinate legislation, for instance, dealing with rules, provisions and measures). In some countries, the authorised body would be the government ministry (Ministry of Finance, in particular), the central bank, the securities commission, and other similar institutions. After World War II, in many countries, an important part of regulation was in the hands of self-regulating institutions, for instance, banking associations or corporation security dealers.

Under the term "supervision" we understand various ways of assessing how set rules are respected. In relation to this, supervisors have the right to influence as well as impose sanctions on institutions being supervised. Besides imposing sanctions, supervisors usually have the right to order removal of imperfections. From a broader perspective, supervision includes activities such as granting licences or performing the function of "lender of last resort". Specification of supervision itself is quite different in particular areas. R. Lastra for instance delimits supervision in four groups of activities: licensing, supervision "stricto sensu" (that is monitoring the supervised institutions), sanctioning, and crisis management (comprising, for instance, the central bank's role of lender of last resort, deposit insurance scheme and bank insolvency proceedings in the banking sector)[2]. D. Llewellyn defines six components of the regulatory regime: regulation, monitoring and supervision, incentive structures, intervention and sanctions, market discipline and corporate governance[3]. C. Goodhart et al. distinguish regulation (the establishment of specific rules of behaviour), monitoring (observing whether the rules are obeyed) and supervision (the more general observation of the behaviour of financial firms)[4].

What holds true for any conception of regulation and supervision is that it must be effective and not only providing stability of the financial system. It must create the environment for effective activities of all individuals and institutions operating on the

[2] Lastra, RM. *Central Banking and Banking Regulation*. London: LSE, 1996, s. 108, 146, 159 aj.
[3] Llewellyn, D. *Alternative Approaches to Financial Regulation*.Financial Regulation Lecture. Institute of Economic Affairs, 1999.
[4] Goodhart, C., Hartmann, P., Llewellyn, D., Rojas-Suarez, L., Weisbrod, S. *Financial Regulation:Why, How and Where Now.* London: Routledge, 1998, p. 189.

financial market. Economic theory gives a theoretical framework for establishing such a regulatory and supervisory framework[5]. This framework incorporates not only organizational structure of regulation and supervision but also the attitude to regulation and supervision and the real rules set by the regulator, and, in effect, supervised by the supervisor.

The basic conceptual issue is closely linked to the interpretation of regulation and supervision, and that is, if regulation and supervision can be separated. In practice this means the right to put suggestions of legislation to the parliament, to recommend changes in legislation, to take part in the creation of legislation and to declare related subordinate legislation does not need to be in the hands of the supervisor, if these tasks can be managed by another institution (regulator).

In the Czech Republic the Ministry of Finance keeps all the above mentioned activities within its departments. The new concept of regulation and supervision is based on the idea that supervision will be performed by an independent committee while all legislation (including subordinated legislation) will be put in parliament, as proposed by the Ministry of Finance. In this case the Ministry would be fulfilling the function of regulator, separate from that of supervisor. There are many arguments for such a proceeding in the hands of government officials. Above all they argue that in the case of problems (bankruptcy) of financial institutions the government bears the costs. They say that this is the reason why government officials should have the right to create legislation under which the capital market should work in such a case.

A lot of economists and politicians do not agree. The centre of the problem is the balance of power. C. Goodhart gives a very lively opinion[6] that democratically elected governments are sovereign and an element of such sovereignty, say the Minister of Finance, is unlikely to want to delegate so much power to another body. Another question is if this solution is good for the capital market, its effectiveness and flexibility as well as the best and cheapest way in looking for stability and fairness on the capital market.

3. Independence of Regulator and Supervisor

It is evident that the basic assumption to function successfully is the independence of regulator and supervisor. This is a very sensitive area because of the fact that the government or political parties (individual members of the government, individual politicians) can pressure regulators and supervisors. The pressure to influence regulation and supervision could also come from the regulated institutions. If stability is the goal of financial sector regulation it is clear that politicians as well as regulated institutions should not have any influence on regulation and supervision. In the case where the government or a ministry is the regulator, the danger of outside pressure is

[5] Mayes, DG., Halme, L., Liuksila, A. *Improving Banking Supervision.* Houndsmils, Basingstone, Hampshire and New York: Palgrave, 2001, pp. 66-68.
[6] Goodhart, C. *The Organisational Structure of Banking Supervision*. FSI Occasional Papers. Basel: BIS, 2000, pp. 19-20.

quite strong. Many countries and nearly all transition countries do not have a well-established system of political checks and balances and that is why it is very often difficult to convince governments of the importance of not meddling with the financial sector.

Unambiguously proclaimed and generally respected requirements of independence of the regulator and supervisor can find its practical reflection in many areas. For instance, selection of staff must be on a high professional and ethical level. They should be legally protected during the job and when they do their personal assessment. Regulators and institutions performing supervision must also have the right to ask all types of information including reports concerning regulation and supervision issues as well as the duty to audit contents. Independence would also mean enforcing corrective measures and punishing institutions if rules are violated. In some studies a more precise specifications of the key dimensions of regulatory and supervisory independence can be found[7]. Efficiency requirements cannot be effective if the supervisory institution does not have the right to put suggestions of legislation to the parliament, to recommend changes in legislation, take part in creation of legislation and to declare related subordinate legislation that can promptly act on supervisory findings.

We are dealing here with true supervision, and not only mere inspection or corrective measures and punishments in the hands of the supervisor. On this logic is based the argument that regulation as well as supervision is closely linked with corrective measures and punishment. That is why separation of supervision from regulation brings many restrictions for supervision as well as for regulation. And there is no doubt that the status of the supervisor as well as the regulator can be seriously influenced, and changed through regulation (legislation and subordinated legislation). The proceeding of supervision itself can be changed this way as well. That means the separation of regulation and supervision is a serious restriction of the independence of the supervision and the question can even be raised if supervision can be considered to be independent. There are many studies recommending not separate regulation and supervision[8]. The basic argument for such a solution is an ownership argument – supervisors will identify themselves better with the task of rule-implementation and enforcing, if they have been closely involved in the rule-setting process as well[9].

To structure a legal, regulatory and supervisory framework we have to mimic complete contracts in rule setting, and mimic ideal market conditions by exploiting market discipline[10]. All responses of regulators and supervisors must be very prompt

---

[7] M. Quintyn and MW. Taylor underpin four key dimensions of independence: regulatory, supervisory, institutional and budgetary (Quintyn, M., Taylor, MW. *Regulatory and Supervisory Independence and Financial Stability.* IMF WP/02/46. Washington, D.C.: IMF, 2002, p. 13-22). They also underline that these four dimensions make an organic whole.

[8] International Organisation of Securities Commission Objectives and Principles of Securities Regulation (www.iosco.org).

[9] Quintyn, M., Taylor, MW. *Regulatory and Supervisory Independence and Financial Stability.* IMF WP/02/46. Washington, D.C.: IMF, 2002, p. 14.

[10] Mayes, DG., Halme, L., Liuksila, A. *Improving Banking Supervision.* Houndsmils, Basingstone, Hampshire and New York: Palgrave, 2001, p. 68.

mainly because of rapid changes in the international environment. Many studies confirm that there is much input coming from outside surroundings that need quick responses. This would demand close contact of the regulator with regulated bodies and means another argument for holding regulation and supervision in the same hands.

In the Czech Republic (and there is a similar situation in many other countries, mainly in those where the tendency to centralise decisions on the federal level is strong) we can observe efforts of the Ministry of Finance to keep as much as possible powers in regulation. It is important to notice that the Ministry of Finance is a very huge, strong and non-transparent institution where a lot of power and executive authority is concentrated. It can only help in the transparency and efficiency of the Czech economy and the government if any agenda can be taken out of this "mega-institution". The experience of many developed countries (above all EU countries) confirms that the capital market is just the area that can be managed by independent institutions much more effectively than by governmental officials.

The independence of the regulator and supervisor is in every particular case closely linked to the range of directive versus market regulation. The more space is given to the market the lesser role (and maybe independence as well) needs to be given to the regulator, in other words, the regulator does not need to exist at all. Nowadays the dynamic changes in activities of financial institutions really demand to more reliance on the market regulation[11] that must be based on trustworthy rules, strictly stated requirements on transparency and information and internal systems of control and managing risks. In such a way financial institutions can be more under control of their rivals, institutional investors, clients and traders as well as rating agencies.

The independence understandably does not mean the separation of the regulator, regulation and supervision from "public affairs" or informational and professional withdrawal of the regulator. An unconditional independence could bring a creation of a democratically unacceptable "state in state". That is why the results of regulation and supervision activities must be controlled. It is very important in this context of any and which reports about the activities the regulator gives, whom he reports to, whom and under which proceedings these reports are endorsed and which reports impact on future activities of the regulator. The independence and accountability need to go hand in glove and in some studies setting up proper accountability is considered the key to effective regulation and supervision[12]. Anyway the institution performing regulation and supervision must hold the support of the public and that is why independence needs a high level of transparency – it must be unambiguously a trustworthy and respected institution and it is not possible to reach these dimensions without transparency. Regulation of financial markets proceeds in an environment of imperfect information and the regulation itself as well as information about the regulation must correct distortions caused by such asymmetric information. In some studies underlying the importance of information flows is considered as the basis of

[11] Lastra, RM. *Central Banking and Banking Regulation*. London, LSE, 1996, s. 147-159.
[12] Quintyn, M., Taylor, MW. *Regulatory and Supervisory Independence and Financial Stability*. IMF WP/02/46. Washington, D.C.: IMF, 2002, p. 5.

regulation and supervision[13]. But there is a limit in transparency, too – full legibility could restrict the efficiency of independence. The above statement confirms that the range and the shape of the independence is practically a very delicate and sensitive matter.

The way used for covering costs of the regulator's activities is also closely linked to its independence. Generally two basic ways are possible: from the government budget or from the capital market participant charges. Both ways have their positives and negatives. Never the less the dependence on government budget is another possible way to influence regulation and supervision while charges of capital market participants are less inconvenient. From this point of view it is possible to highly appreciate the Ministry of Finance's proposal that costs of supervising institution(s) will be covered by charges of capital market participants instead of the government budget. The same proceeding has been mostly accepted around the world.

The quality of regulation and supervision is critically dependent upon the quality of staff. This has been underlined even in the case of a very respectable institution - the British FSA (Financial Services Authority), where the criticism concerns supervising staff while management is generally awarded[14]. The desperate need of highly qualified regulators, supervisors as well as managers fully concerns the rising Czech regulation and supervision institutions.

4. Conclusion

The concept of regulation and supervision itself confirms that it incorporates many aspects and reflects various specifics in particular countries and regions. If minimization of information asymmetry and moral hazard is the goal of regulation and supervision as well as creation of environment for the stability of the financial system, then efficiency and credibility of regulation and supervision matter as a precondition of this aim. In many countries the financial system oversight (in the broadest sense of this word, not just „supervision") is in the hands of authority responsible for all its elements[15]. The reason for such a solution is above all an ownership argument. To let all activities in regulation and supervision in the hands of only one institution is reasonable also because of the necessity to respond quickly and flexibly on changes in the economic and financial environment.

[13] Mayes, DG., Halme, L., Liuksila, A. *Improving Banking Supervision*. Houndsmils, Basingstone, Hampshire and New York: Palgrave, 2001, p. 69.
[14] Too big for its suits? The Economist, 2001, November 17th, p. 81.
[15] Mayes, DG., Halme, L., Liuksila, A. *Improving Banking Supervision*. Houndsmils, Basingstone, Hampshire and New York: Palgrave, 2001, p. 74.

Abstract

Změny ve struktuře finančního sektoru v posledních desetiletích si vynucují i změny v regulaci a dohledu. Souhlas se zásadními rysy takových změn však nebyly zatím dosaženy nejen v ekonomické teorii, ale ani v politické rovině. Z teoreticko ekonomického hlediska je jednou z klíčových otázek samo pojetí regulace a dohledu a vyjasnění podstaty celé řady vazeb mezi regulací a dohledem. Pokud je cílem regulace a dohledu minimalizace asymetrie informací a morálního hazardu a vytváření podmínek pro stabilitu finančního systému, efektivnost a věrohodnost regulace a dohledu je jedním ze základních předpokladů k dosažení takového cíle. V řadě zemí je dohled nad finančním trhem (financial system oversight) v nejširším slova smyslu v rukou jediné instituce odpovídající za všechny oblasti regulace a dohledu[16]. Argument pro takové řešení je především „vlastnický" argument. Ponechání veškerých aktivit regulace a dohledu v rukou jediné instituce je zdůvodnitelné i potřebou pružně reagovat na změny v ekonomickém a finančním prostředí.

References

[1] EGGERTSSON, G., LEBORGNE, E.*A Political Agency Theory of Central Bank Independence.* IMF WP/03/144. Washington, D.C.: IMF, 2003.

[2] GOODHART, C., HARTMANN, P., LLEWELLYN, D., ROJAS-SUAREZ, L., WEISBROD, S. *Financial Regulation: Why, How and Where Now.* London and New York: Routledge, 1998. ISBN 0-415-18505-X.

[3] GOODHART, C. *The Organisational Structure of Banking Supervision*. FSI Occasional Papers. Basel: BIS, 2000.

[4] HALL, M.J.B. *Banking Regulation and Supervision*. Edward Elgar, 1993. ISBN 1 85278 129 7.

[5] JOHNSTON, RB., HORVÁTH, B., ERRICO, L., CHAI, J. *Large and Complex Financial Institutions: Challenges and Policy Responses – Lessons from Sweden.* IMF Policy Discussion Paper 03/01. Washington, D.C.: IMF, 2003.

[6] LASTRA, RM. *Central Banking and Banking Regulation*. London, LSE, 1996. ISBN 0-7530-0725-8.

[7] LITOŠOVÁ, R., RÝDL, T., SVOBODOVÁ, J. Je možná jednotná regulace finančního trhu? *Bankovnictví*, 2003, 1, s. 15-17. ISSN 1212-4273.

[16] Mayes, DG., Halme, L., Liuksila, A. *Improving Banking Supervision*. Houndsmils, Basingstone, Hampshire and New York: Palgrave, 2001, p. 74.

[8] MATOUŠEK, R. The Czech Banking System in the 1990s: Regulation and Supervision. In POLOUČEK, S. (ed.) *Reforming the Financial Sector in Central European Countries.* Houndmills, Basingstoke, Hampshire: Palgrave Macmillan Publishers, 2003. ISBN 1403915466.

[9] MAYES, DG., HALME, L., LIUKSILA, A. *Improving Banking Supervision.* Houndsmils, Basingstone, Hampshire and New York: Palgrave, 2001. ISBN 0-333-94896-3.

[10] QUINTYN, M., TAYLOR, MW. *Regulatory and Supervisory Independence and Financial Stability.* IMF WP/02/46. Washington, D.C.: IMF, 2002.

NOTES ON BANKING CRISES RESOLUTION IN THREE TRANSITION COUNTRIES

Roman Matoušek[1]

Key words

banking crisis resolutions, transition countries, privatization, centralised and decentralised approach, non-performing loans, state control

1. Introduction

The approach taken towards developing a viable financial sector varies among the Czech Republic, Hungary and Poland. The resolution of non-performing loans has been dependent on a number of factors. The most important factors have been the starting conditions, macroeconomic setting and development, the pace of other reforms—including institutional and legal—and, last but not least, the political consensus in support of market-based institutions.

Looking at the development of banking sectors across CEE some differences are observable. Hungary, for example, had already initiated banking reforms in the early 1980s and that had also been accompanied by legal and enterprise reforms. The other aspect that had an impact on the future development of banking systems was whether transition countries followed the so-called "rehabilitation", or the new entry approach. The rehabilitation approach is based on recapitalisation and consolidation of state banks, including limited privatisation and new entry (Hungary, Poland and, to some extent, the Czech Republic). The second approach—new entry—applied mostly in the countries of former Soviet Union had been based on relatively liberal entry of new banks including rapid privatisation.

Macroeconomic conditions and development and the microeconomic restructuring process have become fundamental factors for the development, stability and soundness of the banking system. All CEE were exposed to both domestic and external shocks that could not be accommodated by the existing economic system. Such shocks including price liberalisation, currency devaluation, privatisation, industrial conversion, foreign trade liberalisation, the collapse of the former trade organisation CMEA, significantly affected the transition economies including their banking sectors.

[1] Corresponding address: Department of Economics, Finance and International Business, London Metropolitan University, 31 Jewry Street , London EC3N 2EY, England, r.matousek@londonmet.ac.uk

At the beginning of the 1990s, these shocks resulted in a deep decline in output and consequently in a further deterioration of the financial position of SOEs.

An integral component for successful banking reforms has been the pace and extent of legal and enterprise reforms such as collateral recovery, bankruptcy law, protection of creditors instead of debtors, regulatory an supervisory policy, etc.. These were essential elements determining banking soundness.

All three transition countries have been undergoing a complex process of liberalisation similar, but more radical, to those in EU countries in the 1970s and 1980s. The authorities set the basic regulatory and supervisory framework, new operational guidelines and principles for banks' prudential behaviour. However, regulatory and supervisory capacity was severely limited and banks lacked, among other things, the basic credit skills. This was reflected later in a further destabilisation in the banking sector.

This paper does not aim to describe the methods and approaches of how to deal with banking crises in CEE. It attempts to provide evidence and a critical analysis of the best practise of handling banking crises in three transitional countries: the Czech Republic, Hungary and Poland in the last 12 years. Although these countries had, to some extent, comparable starting conditions—a relatively high inflation, a deep recession, monobanking system, etc.—the results of crisis resolution varied substantially between them.

2. Banking Crises Resolutions for the CEE

2.1 Centralised or Decentralised Approach?

Authorities did not have to search for new 'special' methods of dealing with NPLs and distressed banks. They only had to decide which strategy should be appropriate for their banking system. Authorities could opt for either a centralised or decentralised solution. In the first stage of the transition the Czech Republic and Hungary applied a centralised approach within a framework of the banking sector consolidation programme. NPLs were transferred to a centralised asset management company (AMC) or so-called "hospital bank" that dealt with NPLs transferred from the portfolio of the financially distressed SOBs. Simultaneously the banks that participated in the consolidation program had discretion to write-off remaining NPLs when the likelihood of recovery was low or the burden of NPLs might cause the bankruptcy of viable firms.

Although the centralised loan consolidation programmes applied in the Czech Republic and Hungary improved commercial banks' portfolios, these banks remained undercapitalised and additional measures had to be taken later on.[2] In Hungary, it was only recognised later, unlike in the Czech Republic, that the high concentration of

[2] It was later recognised that this method created a problem of double moral hazard (Begg and Portes, 1993) and required higher financial injection into troubles banks.

assets in one institution would impose a constraint on an efficient recovery of NPLs. Klingebiel (2000) and Hoggarth, Reidhill and Sinclair (2002) argue that the centralised approach has the advantage of economies of scale there was not evidence of this in the Czech and Hungarian cases. On the contrary, an accumulation of a large amount of the heterogeneous NPLs in one institution, as in the Czech case, rendered the asset management a technically impossible task.

In the case of the decentralised approach, applied in Poland and later in Hungary, the government did not carve out NPLs of the portfolio of commercial banks but left them with banks. Banks had to take their own responsibility for restructuring their portfolio. Two alternatives were applied. Banks could either sell to an AMC at a discount NPLs or recuperate NPLs by establishing subsidiaries that had the form of the Special Purpose Vehicle (SPV). Although the restructuring process was time consuming and the outcome uncertain this regime provided banks with the possibility to restore their business activities without the imposition of any conditionality. Polish commercial banks set up special departments that were directly accountable for the resolution of NPLs. This method was apparently more efficient since regional banks had a good knowledge of local markets and could target assistance on a selected basis to companies with a restructuring potential.

The Hungarian government recognised the bottlenecks of the centralised method in 1992 and tried to recapitalise banks on an individual basis. The new bankruptcy law, which resulted in companies being declared bankrupt, reinforced the urgency of applying the decentralised approach. The new consolidation programme was set up in December 1993 shortly after the so-called Loan Consolidation Programme. It was phased in in three steps and aimed at increasing capital adequacy ratios to reach the regulatory required level (8 per cent).[3]

The main shortcomings of these programmes were the lack of transparency and the application of discretionary policies, which left incumbent managers with no incentive to recover NPLs. The fast and significant restructuring of both SOBs and state-owned enterprises (SOEs) was crucial. The flaw of the centralised method, applied in the Czech Republic, lay above all, in the unresolved issue of the initial cause of the NPLs that is, non-restructured or insufficiently restructured SOEs. By creating an AMC or hospital bank the authorities disposed NPLs from banks' balance sheets which enabled them to provide financial services. However, banks in many cases faced a recurring problem of new NPLs. This then required repeated rescue operations by the authorities in the second half of 1990s. Extensive credit expansion by SOBs to SOEs, in the first stage of transition, postponed their restructuring.

The Czech and Hungarian case clearly confirmed that the centralised method is an inappropriate solution in the case of transitional economies. It materialised soon that the government did not prevent newly created NPLs. The government

[3] The total cost amounted to HUF 163 bn. The generous financial injection provided by the government led to an increase in the state ownership of banks that participated in this programme.

overemphasised a resolution of NPLs originated under a command economy and a problem of newly created NPLs by SOBs was overshadowed.

The Polish method, although introduced later than in the Czech case, significantly reduced the flaws of the centralised approach. The Polish authorities focused attention not only on the NPLs from the central planned economy but also took into consideration preventing repeating problems. The Act on the Financial Restructuring of Enterprises and Banks set the legal framework in which SOBs and SOEs could operate.

The lack of transparency and a clear message about no future interventions by the government, coupled with the *too-big-to fail* issue for large banks, gave raise to banks' expectation of a future government bail out. Indeed, the presence of a moral hazard problem became evident in the early stage of banks' consolidation. This had the direct consequences on the business behaviour of the incumbent management. Particularly dangerous was the double moral hazard problem when SOBs and SOEs formed, unfortunately, correct expectations about future bailouts.

An example of this effect was seen in the Czech Republic, where the issue was exacerbated by the applied bank privatisation method and cross-ownership by SOBs and SOEs. The Czech government cleaned up the state-owned or partial state commercial banks' portfolios during 1991–1993. However, the ratio of NPLs had increased in SOBs immediately after this consolidation process ended. An essential explanation of this situation was unimproved corporate governance and cross-ownership by SOBs, SOEs and private firms.

In the Czech Republic, cross-ownership by SOBs and SOEs or even private companies had generated a viscous circle of credit flow. SOBs in order not to lose their credits provided new loans for paying off *old* claims, which led, in essence, to the classical case of *Ponzi finance*.[4] The presence of soft budget constraints and the unbusinesslike behaviour of SOBs—*government bankers*—were strengthened by the implicit state guarantee in the form of financial support for covering any financial difficulties that the banks might have. Expectations relied on two doctrines. The bank is *too big to fail* or *too important to fail*, including other factors that provided, if not assurance, then at least hope of financial support, i.e. a bank that is *too loyal to fail*. In the second half of the 1990s, the idiosyncratic behaviour of partially state-owned banks started to be labeled as financial socialism. Certainly not a less important phenomenon was that decisions on credit allocation relied more on political calculations than economic calculations.

The moral hazard issue was present even in Poland. Chudzik (1999) analyses the bad debt restructuring process in Poland. The so-called Bank Conciliation Procedure was considered the most promising approach to loan restructuring in the CEE. Under such a programme banks rescheduled their loans according to certain conditionality—partial debt write-off or even debt-equity swap for borrowers which on the other hand have to outline and implement a rescue program—for firms that have

[4] This situation had occurred many times during the Asian crisis, though to a more extreme degree than in the Czech Republic.

thought to have adaptive potential to the market environment. However, political considerations played an important role in deciding the extent to which banks wrote off companies' debt. Therefore the Polish approach to debt clean up also seems insufficient to have been provide a strong guarantee against expectation for future government bailouts.

2.2 Privatisation

Privatisation is other method to resolve the problems with financially distressed SOBs. It has been recognised, in transition countries that privatisation is an alternative solution to government bail out. However, this method incorporates some difficulties and may fail to achieve the objective of stabilisation. The most important aspect of bank privatisation is to cut the links between the banks and the government owned companies. The co-existence of SOBs and SOEs induces a conflict of interest.[5]

The Czech Republic, Hungary and Poland applied three different privatisation techniques. The first method — the initial public offering (IPO) — was applied in Poland. The privatisation program for the nine commercial banks was based on selling 40-50 per cent of total shares of the state-owned banks to domestic investors by IPO on the Warsaw Stock Exchange, 10-20 per cent of total shares to bank employees and 10-20 per cent of total shares to foreign investors, reserving 30 per cent for the state. Bank privatisation in Poland was intensified from 1998 after rules were relaxed on ownership.

Hungary adopted two different methods of bank privatisation. The first method was the sale of shares by public offering to a dispersed group of foreign and domestic investors similar to the Polish way. The second method was the sale of a large stake to strategic investors. Making portfolios attractive by the loan and bank consolidation programmes, the government intended to search for strategic financial investors for each bank with the exception of OTP – the National Saving institution.[6] In the case of Postabank, Hungary's third largest bank, a special combination of the two methods was adopted: the public offering followed four years after the initial sale of minority shares to foreign professional investors.[7] Hungary is the best example of bank privatisation in CEE. In all cases foreign strategic owners received the majority of the shares. By the end of the privatisation process in 1997, the market share of state-owned banks had fallen to 20 per cent.

---

[5] SOBs are often misused for government's objectives to finance SOEs with a low likelihood of possible repayments.

[6] Recent developments suggest that rapid privatisation of banks and opening of the market to foreign investors has helped to increase the efficiency and competitiveness of the Hungarian banking sector.

[7] Postbank had been run into the ground by its previous top management and had to be rescued, rehabilitated and recapitalised at the beginning of this year, returning the bank into state ownership.

The Czech experience was principally based on voucher privatisation — the third model. The majority of large state-owned banks went through voucher privatisation: the state kept 26 - 67 per cent of the shares of the largest banks and, while the other shares were sold by vouchers. Since the large banks collected the major stake of vouchers through the investment privatisation funds founded by them, significant cross-ownership evolved between the banks and their clients and amongst the banks. In 2000 the Czech government completed the privatisation of four SOBs, following a clean up of these banks' portfolios through government intervention or guarantees.[8]

State control over the banking sector exerts long term effects by distortion the economy through non-commercially based lending, frustrating the objectives of privatisation. There are four main shortcomings of the government intervention: delaying restructuring, restricting competition, allowing bad loans to accumulate and postponing bankruptcy particularly of the largest companies. In order to avoid the political consequences of widespread bankruptcies and consequently unemployment, government has had an interest in saving failing politically important firms. Therefore, strong political pressure is put over state-owned banks to subsidise loans to such firms. The bank-state relationship is not explicit. Personal relationships and unexpressed understandings between bankers and government agencies are factors that are difficult to evaluate. The bank management and the government are involved in a sort of preliminary game: they interact in a game whose outcome is the set of rules under which they will subsequently play another game whose outcomes are economic payoffs.

The resulting implicit or explicit political decisions about credit allocation by state-banks besides the fact that such banks are barely qualified to assess credit in general, let alone equity and risk, increases the probability of banking system running risk for a prolonged period during the transition.[9] Therefore, government control over banks raises the question of company insolvency banking firm solvency in general and banking insolvency in particular.

The relationship between banks and the government is complicated further persisting expectations about the government bail out if banks get into trouble in the future by making unsound loans. The probability of government bail out is in many cases positively correlated with the banks' lending policy. If banks provide new credits according to what it is perceived by government to be national interest rather than based on a commercial decision, it leads to a situation where no large company (including banks), facing real difficulties, becomes bankrupt. Governments continue to bail out the banks in trouble.

In the case of Hungary the situation was similar. In January 1999 the Hungarian government bailed out Postabank, injected Ft 152 billion (some $706

[8] Investiční a Poštovní Banka (IPB), however, was sold to Nomura without portfolio restructuring which was reflected in the selling price.

[9] In the Czech Republic up to mid-1998 the four main banks remained to a large extent state-owned and were effectively state controlled. Their business activities continued to be geared toward large industrial loans, with credit allocation, dictated by industrial needs. The banks have been used to prop up obsolete industry with some new loans granted to companies in default.

million), and saved the bank from big losses. Although two Polish banks—the Savings Bank PKO and Agricultural Bank BGZ—were bailed out in 1994, they suffered heavily from the subsidised loans given to housing credit and strong agricultural lobby respectively. The privatization of these banks was accompanied by a further government bail out.

State ownership, control or past government interference in the banking sector increases the moral hazard problem.[10] The expectations of bank manager are critical for the bank lending decision. If bank managers believe that poor performance will trigger a government bailout in the future with little or no consequences for themselves, then their incentive to take difficult decisions on existing borrowers and to screen carefully potential borrowers are not strong. Therefore, banks could commit capital to such 'safer' firms in the short run other than making loans to new politically unimportant firms, even when these ones are more efficient, resulting in new bad loans. If banks cannot expect such government assistance, then the incentive for good performance is much stronger.

3. Effects of Banking Crisis Resolution in CEE

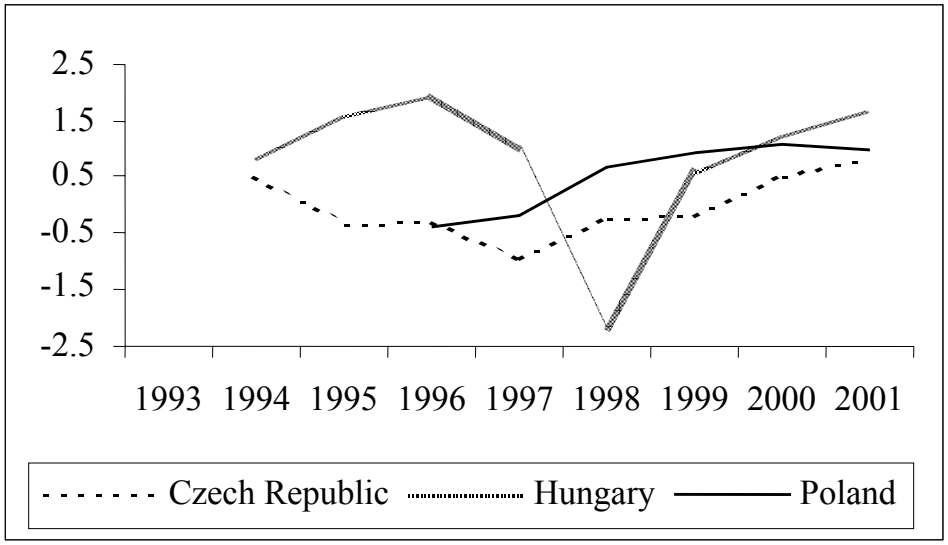
In transition countries, the resolution of banking crises has three basic objectives. First, to re-introduce the intermediation function of commercial banks. Second, to mitigate the risk of systemic crises. Third, to speed up the institutional and legislative changes supporting a market oriented economy.

As discussed above the method of achieving these objectives in practise has varied across countries and time. A crucial question is how to measure an optimal solution to banking crises. Dziobek and Pazarabasioglu (1997) make a decision on the basis of improvements in banks' performance, overall economic performance and intermediation capacity.

However, the effect of banking crisis resolution has a significant lag and it is hard to compare banks' performance when the systems face continuing disruptions. Using profitability as a performance criterion suggests all three banking systems have performed poorly (see Figure 1). The sudden fall in profitability in Hungary in 1998 is probably due to the impact of new strategic investors consolidating banks through provisions and reserves. Nevertheless, the ROA is surprisingly low in all three countries, given a relatively high inflation environment. Higher inflation may also explain the better profit performance in Poland than the Czech Republic notwithstanding the more competitive environment in the latter case.

[10] Claessens (1996), using a sample of twenty-five transition countries, finds that preferential treatment by government and excessive concentration in banking in transition economies, restrain the progress of banks.

Figure 1 - Pre-tax ROA (%)

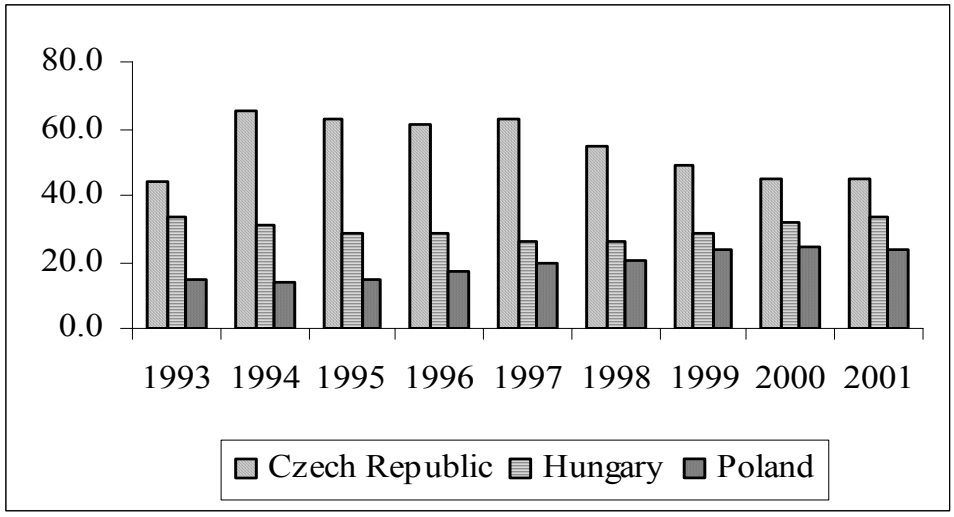


Source: Central Banks.

An analysis based on overall country performance for all three countries is also inconclusive. Applying the criterion of overall economic performance in the selected countries, Chart 1, shows that Hungary and Poland performed on average better than the Czech Republic after the first stage of transition. That said, inflation was lower in the Czech Republic than in Hungary and Poland through the transition period (Chart 2). A good macroeconomic performance, however, does not necessarily imply a functioning banking sector (as seen in other transition countries, e.g. Albania).

Intermediation capacity measured in terms of financial deepening has also limitation as is shown in Chart 2. This indicator shows only the dependence of an economy on credits but cannot tell us anything about the impact of banking crisis resolution on the system as a whole.

Figure 2- Credits to GDP (%)



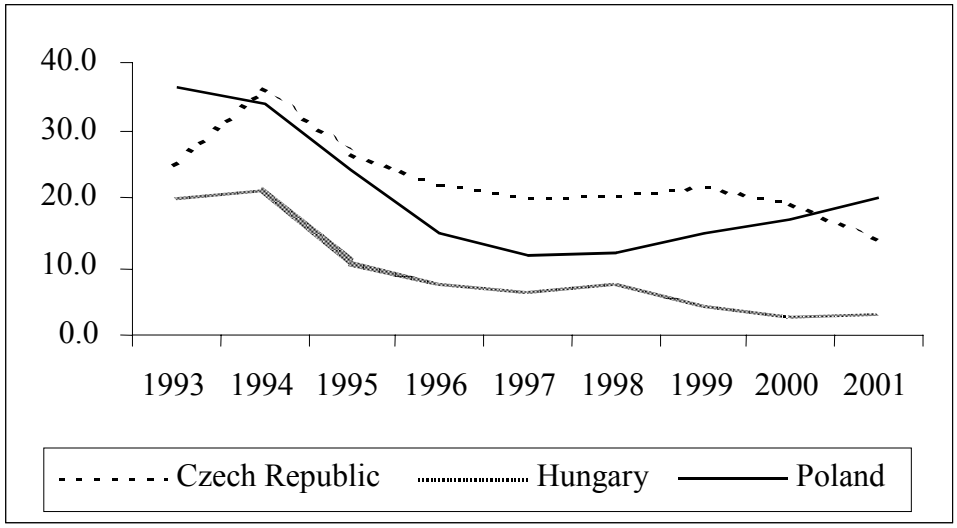
Source: International Monetary Fund.

An extension of these indicators is desirable for transition countries. The cumulative total fiscal costs of banking crises resolution to GDP might explain not only the extension of the crisis resolution (relative to GDP), but also the efficiency of the rescue operations in individual countries.

Another indicator such as the ratio of NPLs to total loans (assets) might help us with indicating whether or not rescue operations were sufficient. As has been mentioned, the path of NPLs might provide us with a more specific indicator of banking sector performance. Chart 3 indicates that only the Hungarian banking system showed a continuous decline in NPLs. The increase of NPLs in Poland, mainly in the late 1990s, could be explained either that foreign investors overestimated true proportions of NPLs or by disclosing a true value of NPLs after privatisation.

However, when the indicator of NPLs is combined with the applied privatisation methods its explanatory power in analysing an optimal banking crisis resolution increases. Hungary demonstrates the lowest proportion of NPLs. Hungary was also the first country, among CEE countries, that finished the privatisation process of the banking sector. Based on the Hungarian current situation in the banking sector, it may be concluded that the timing and the way of privatisation proved to be essential elements of banking crisis resolution in CEE. On the basis of this analysis it might be argued that the decentralised approach of banking crisis resolution combined with rapid privatisation to strategic foreign banks (investors) seems to be a quasi-optimal solution.

Figure 3 - Non-performing loans to total loans (%)



Source: Central Banks.

4. Conclusions

The analysis shows that applied measures in dealing with banking crises have varied among transition countries and were dependent on political consensus. Bad loans clean up has turned out to be relatively complicated. A delay in restructuring increased costs and eventually required a stronger response. Examining the experience of three CEE countries, no firm conclusion can be drawn about the optimal crisis resolution in the banking sector in transition. However, looking back we could argue about the essential elements of what could have been an optimal resolution, elements that have, to some extent, characterised a quasi-optimal crisis resolution as in the case of Hungary.

Rescue operations and consequent consolidation must be simultaneously accompanied by macroeconomic stability, enterprise restructuring and replacement of inept management, and abolishment of forced subsidised credits. If this is not achieved then it will be reflected in the continuous misallocation of credits. The failure to recognise the problem of establishing a firm line between old and new loans (stock vs. flow) called for repeated bailouts in the Czech Republic. Another observed mistake of banking crisis resolution is that government interventions did not guarantee a 'level playing field' for enterprises and banks. In addition, the presence of moral hazard due to budgetary softness was evident in all three countries. The Czech and partly even Hungarian case shows that without an incentive structure, a re-capitalisation programme would fail.

A crucial aspect for stabilisation of banking sectors, among others, was privatisation. Delays in privatising (state-owned banks) had negative external effects on restructuring process and the economy as a whole. Partial privatisation, e.g. applied in the Czech Republic at the outset of reforms, was undoubtedly positive but a further delay

caused additional costs. Bank privatisation, however, should not be perceived as a panacea for all shortcomings within a given economy, but is essential to eliminating distortions caused by mixed ownership structure.

Abstract

Analýza ukazuje, že provedené měření v souvislosti s bankovními krizemi se mezi tranzitivními zeměmi lišilo a záviselo na politických dohodách. Odstranit špatné úvěry se ukázalo být docela komplikované. Zpoždění v restrukturalizačním procesu zvyšovalo náklady a vyžadovalo tvrdší reakci. Ze zkušeností tří zemí středovýchodní Evropy vyplývá, že žádná firma nemůže učinit závěry o optimálním krizovém usnesení v tranzitivním bankovním sektoru. Nicméně, podíváme-li se zpět mohli bychom diskutovat o nezbytných krocích, které by mohli být optimálními rozhodnutími, o krocích, které v určitém rozsahu charakterizovaly quazi-optimální krizové rozhodnutí, jako v případě Maďarska.

References

[1] BEGG, D., PORTES, R. Enterprise Debt and Financial Restructuring in Central and Eastern Europe, *European Economic Review*, no. 37, 1993, pp. 403-405.

[2] Bank for International Settlements Bank restructuring in Practise, *BIS Policy Papers*, no. 6, August, 1999.

[3] CHUDZIK, R. Banks as Agents of Change: Experience with Restructuring of Bad Debts in Poland, *Communist Economies & Economic Transformation*, vol. 10, no. 4, 1998.

[4] CLAESSENS, S. Banking Reform in Transition-Countries, *World Development Report*, World Bank, Washington DC, 1996.

[5] DZIOBEK, C., PAZARBASIOGLU, C. Lessons from Systemic Bank Restructuring: A Survey of 24 *Countries IMF Working Paper, no.* 161, 1997.

[6] HERNES, N., LENSINK, R. Financial System development in transition economies, *Journal of Banking & Finance*, no. 24, 2000, pp. 507-524.

[7] HOGGARTH, G., REIDHILL, J., SINCLAIR, P. Resolution of Banking Crises: Theory and Evidence, paper presented at CCBS *Workshop on Crisis Resolution,* Bank of England 9 December, 2002.

[8] KLINGEBIEL, D. The Use of Asset Management Companies in the Resolution of Banking Crises – Cross Country Experience *World Bank Policy Research Working Paper,* no. 2284, 2000.

[9] MATOUŠEK, R., TACI, A. The Assessment of the Costs and Benefits of the Small and Medium Commercial Banks within the Czech Banking Sector in Hölscher, J., (ed), Financial Turbulences and Capital Markets in Transition Countries, London: Macmillan Press, New York: St Martin's Press, 2000, pp. 118-137.

WAYS OF ENTERING INTO BANCASSURANCE

Anton Korauš[1]

Key words

bank, bankassurance, insurance, banking, distribution, marketing advantages

1. Introduction

There is no single way of entering into bancassurance which is "best" for every insurer and every bank. As in all business situations, a proper strategic plan drafted according to the company's internal and external environmental analysis and the objectives of the organization is necessary before any decision is taken.

2. Ways of Entering into Bancassurance

There are many ways of entering into bancassurance. The main scenarios are the following:

- one party's distribution channels gain access to the client base of the other party. This is the simplest form of bancassurance, but can be a "missed opportunity". If the two parties do not work together to make the most of the deal, then there will be at best only minimum results and low profitability for both parties. If, however, the bank and the insurance company enter into a distribution agreement, according to which the bank automatically passes on to a friendly insurance company all "warm leads" emanating from the bank's client base, this can generate very profitable income for both partners. The insurance company sales force, in particular usually only the most competent members of the sales force, sells its normal products to the bank's clients. The cooperation has to be close to have a chance of success. For the bank the costs involved – besides those for basic training of branch employees – are relatively low;

- a bank signs a distribution agreement with an insurance company, under which the bank will act as their appointed representative. With

[1] doc. Ing. Anton Korauš, PhD., Ekonomická univerzita v Bratislave, Národohospodárska fakulta, Dolnozemská 1, 852 35 Bratislava 5

proper implementation this arrangement can lead to satisfactory results for both partners, while the financial investment required by the bank is relatively low. The products offered by the bank can be branded;

- a bank and an insurance company agree to have cross shareholdings between them. A member from each company might join the board of directors of the other company. The amount of interest aroused at board level and senior management level in each organization can influence substantially the success of a bancassurance venture, especially under distribution agreements using multidistribution channels;

- a joint venture: this is the creation of a new insurance company by an existing bank and an existing insurance company;

- a bank wholly or partially acquires an insurance company. This is a major undertaking. The bank must carefully define in detail the ideal profile of the targeted insurance company and make sure that the added benefit it seeks will materialize;

- a bank starts from scratch by establishing a new insurance company wholly;

- owned by the bank. For a bank to create an insurance subsidiary from scratch is a major undertaking as it involves a whole range of knowledge and skills which will need to be acquired. This approach can however be very profitable for the bank, if it makes underwriting profits;

- a group owns a bank and an insurance company which agree to cooperate in a bancassurance venture. A key ingredient of the success of the bancassurance operation here is that the group management demonstrate strong commitment to achieving the benefit;

- the acquisition (establishment) of a bank that is wholly or partially owned by an insurance company is also possible. In this case the main objective is usually to open the way for the insurance company to use the bank's retail banking branches and gain access to valuable client information as well as to corporate clients, allowing the insurance company to tap into the lucrative market for company pension plans. Finally, it offers the insurance company's sales force bank product diversification (and vice versa). This form is used in many cases as a strategy by insurance companies in their effort not to lose their market share to bancassurers.

3. Conclusion

The best way of entering bancassurance depends on the strengths and weaknesses of the organization and on the availability of a suitable partner if the organization decides to involve a partner.

Whatever the form of ownership, a very important factor for the success of a bancassurance venture is the influence that one party's management has on that of the other. An empowered liaison between respective managements, with regular senior management contacts, as well as sufficient authority to take operational and marketing decisions, is vital. Regular senior management meetings are also a vital element for a successful operation. There must be a strong commitment from the top management to achieving the aims in the business plan.

Abstract

Neexistuje jednotný /ucelený/ spôsob vstupu ktorý by bol "najlepší" pre každého poisťovateľa a každú banku. Podobne ako v ostatných oblastiach podnikania, je potrebné vychádzať z vhodného strategického plánu, vychádzajúceho z analýzy interného a externého prostredia. Existuje niekoľko spôsobov vstupu. Najlepší spôsob vstupu závisí teda od sily ako aj slabostí organizácie a tiež dostupnosti vhodného partnera, v prípade uzavretia partnerskej zmluvy. Pri akejkoľvek stratégie najdôležitejším faktorom ovplyvňujúcim jej úspešnosť je vplyv a vzájomná previazanosť medzi managementami obidvoch zúčastnených spoločností. Práve prepojenia medzi príslušnými úrovňami managementu ako aj ich napojenie na vrcholový management a s tým súvisiace určenie vhodnej autority, realizujúcej jednotlivé operačné a marketingové rozhodnutia, je životne dôležité. Podmienkou je silné napojenie obidvoch vrcholových managementov na dosahovaní "business" cieľov spoločnosti.

References

[1] ČEJKOVÁ, V. *Pojistný trh*. Praha: Grada, 2002. ISBN 80-247-0137-5.

[2] DRUGDOVÁ, B. Life Insurance in Slovakia. In POLOUČEK, S., KULHÁNEK, L., FLEISSIG, S. (eds.) *Future of the Banking after the Year 2000 in the World and in the Czech Republic. VI. Privatization of the Banking Sector*. Proceedings from the International Conference. Karviná: OPF SU, 2001.

[3] KORAUŠ, A. Marketing v poisťovníctve. Bratislava: Sprint, 2001. ISBN 80-88848-91-1.

[4] KORAUŠ, A.: Bankopoisťovníctvo vo Francúzsku. *Poistné rozhľady*, no. 1, 2003.

[5] KORAUŠ, A. Príčiny vstupu bánk a poisťovní do bankopoisťovníctva. In *Financie a účetníctví ve vědě, výuce a praxi*. Zlín: Univerzita Tomáše Bati ve Zlíně, Fakulta managementu a ekonomiky, 2003.

[6] MAJTÁNOVÁ, A. Systém poistných vzťahov v národnom hospodárstve. *Národohospodářský obzor*, no. 1, 2003. ISSN 1213-2446.

[7] RŮČKOVÁ, P. Integration Processes in the Field of Banking and Insurance. In POLOUČEK, S., KULHÁNEK, L., FLEISSIG, S. (eds.) *Future of the Banking after the Year 2 000 in the World and in the Czech Republic.* V. *Audit and Rating in the Banking Sector*. Proceedings from the International Conference. Karviná: OPF SU, 2000. ISBN 80-7248-085-5.

THE DEVELOPMENT OF CREDIT RISK REGULATION IN THE CZECH REPUBLIC

Pavla Vodová

Key words

credit risk, classified loans, risk exposure, strategy of credit risk management

1. Introduction

According to Czech banking law, a bank is obliged to accept deposits and to provide loans. Although banks are exposed to various risks from the very nature of their business, credit risk is the oldest, the most important and primary risk in banking. Pirner (2003) maintained that credit risk in Czech banks makes up 60 – 70 % of risks, whereas operational risk comprises 20 – 30 %, and market risk only about 10 %.

The aim of this paper is to characterise the credit risk and its level in the Czech banking sector (section 2). The third section of this paper defines the most important types of credit risk regulation, and describes how the condition of credit risk regulation has been gradually changed by the Czech National Bank which serves as the institution of bank regulation and supervision.

2. Credit Risk

The term "credit risk" is sometimes used for two different risks: the credit risk connected with loans and the credit risk connected with securities. In the case of loans, the credit risk refers to a situation risk that the borrower will not be able or willing to meet his/her obligation and the bank will therefore realise a loss. In the case of securities, the credit risk is the risk whereby the bank will realise a loss due to a default by the issuer of a security held by the bank. The risk of loss as a consequence of default on a loan obligation is understood under the term credit risk in this article.

Classified loans and their share on total credits is quite a good indicator of the level of credit risk of the banking sector. In the case of Czech Republic, the share of nonperforming loans ranges around 30 % and is decreasing only recently. The structure of classified loans develops favourably: while more than 50 % of the classified loans belonged to loss loans in 1997, almost half of the classified loans is at present sorted to watch loans – see Table 1.

Table 1 – Development of classified loans in the Czech Republic

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Classified loans	36,5	33,1	29,3	26,9	27,1	32,2	28,9	20,8	15,8
Watch loans	N/A	N/A	N/A	22,8	22,8	31,7	33,3	36,1	47,5
Substandard loans	N/A	N/A.	N/A	10,0	12,9	13,5	21,3	15,5	18,4
Doubtful loans	N/A	N/A	N/A	11,0	13,8	13,2	10,6	14,2	7,7
Loss loans	N/A	N/A	N/A	56,2	50,5	41,6	34,8	34,2	26,4
Reserve and provisions surplus (+) or shortage(-)	N/A	-0,28	0,10	-0,03	1,97	0,55	1,77	2,23	1,63

Source: Czech National Bank.

The level of nonperforming loans can also be used as an indicator of a banking crisis. The applied threshold differs among studies: Goldstein and Turner (1996) exercise the threshold about 15 – 20 % of total credits, Caprio and Klingebiel (1997) determine the share as only 5 - 10 % of total credits. Since nearly a third of total credits were classified, it cannot be disputed whether credit risk was one of the causes of the unfavourable financial situation in the Czech banking sector. Consequently it is important to analyse the development of credit risk regulation in the Czech Republic.

3. Credit Risk Regulation

Credit risk regulation involves mainly setting limits of credit risk exposure and constitution of criteria for nonperforming loans and rules for loan loss provisions and reserves.

3.1 Regulation of Credit Risk Exposure

Limits of credit risk exposure were not obligatory until May 1992. The Czechoslovak State Bank only recommended that total credit exposure to single counterparty or group of related counterparties should not exceed 50 % of a bank's capital.

Starting 21st May 1992, all banks have been obliged to:

- set limits of credit exposure by internal regulations;
- modify credit exposure so that:

  a) the credit exposure to a single counterparty or a group of related counterparties will not exceed 40 % of a bank's capital at the latest by 31st December 1993 and 25 % of a bank's capital at the latest by 31st December 1995;

b) the credit exposure to a bank from Czechoslovakia and from OECD countries or to a group of related counterparties composed only of such banks will not exceed 80 % of a bank's capital at the latest by 31st December 1995;

c) the credit exposure to connected counterparties will not exceed 30 % of a bank's capital at the latest by 31st December 1992 and 20 % of a bank's capital at the latest by 31st December 1993;

d) the total credit exposure to the 10 greatest counterparties or group of related counterparties will not exceed 230 % of a bank's capital at the latest by 31st December 1995;

- deliver monthly reports to banking supervisors about credit exposure to counterparties with credit exposure higher than 10 % of a bank's capital.

Another change to credit exposure regulation was established in 1996: limits of credit exposure do not apply to credit exposure for the Czech government, the central governments of OECD countries, the Czech National Bank, central banks from OECD countries, Consolidation banks and other counterparties named. Limits of credit exposure set by the previous regulation have not been changed.

In 1997 the limit of credit exposure for banks from the Czech Republic or from OECD countries has been softened from 80 % up to 125 % of a bank's capital . Other limits have remained unchanged.

A completely new regulation has been established from 1st April 2000. Credit exposure has been divided into credit exposure for banking portfolios and credit exposure for trading portfolios.

- Credit exposure for banking portfolios:

a) credit exposure to one counterparty or group of related counterparties should not exceed 25 % of a bank's capital;

b) credit exposure to connected counterparties should not exceed 20 % of a bank's capital;

c) total credit exposure to counterparties or a group of related counterparties with exposure greater than 10 % of a bank's capital should not exceed 800 % of a bank's capital.

- Credit exposure for trading portfolios:

a) the total sum of long and short-term lending positions of a trading portfolio to a counterparty minus the residual credit exposure to the counterparty at the time of reporting has to be lower than 500 % of a bank's capital;

b) if the difference is not positive within one to nine days before the reporting date, the difference should not exceed 600 % of a bank's capital.

So far, the latest change of credit exposure regulation was introduced on the 1st of January 2003: the limits of credit exposure remain the same; the only modification is the specification of the bank's capital.

3.2 Loan Classification and Loan Loss Provisions

While the obligation to meet limits of credit exposure was introduced in 1992, the rules for loan classification were defined later , on the 4th of July 1994. Loans were divided into 5 categories:

- Standard – this category contains sound loans that are repaid according to schedule. Repayment difficulties are not foreseen and full repayment is expected. Standard loans are such loans where instalments are max. 30 days overdue; the bank has enough information about the financial and income position of the borrower; no credit is rescheduled because of the bad financial and income position of the borrower in the last 3 years;

- Watch – full repayment of such loans is expected. However, these loans require more than normal attention. The criteria are the following: instalments are overdue between 30 and 91 days; the same period is applied for availability of information about financial and income situation of the borrower; the bank reschedules the credit for 6 months to 3 years;

- Substandard – full repayment of substandard loans is in doubt but partial repayment is highly probable. The following criteria are applied: instalments are overdue between 91 and 181 days; the same period is applied for availability of information about financial and income situation of the borrower; the credit is rescheduled for 6 months or less;

- Doubtful – the full repayment of such loans is highly unlikely but partial repayment is possible and probable. Doubtful loans are loans with instalments overdue more than 180 days and less than 361 days; the same period is again applied for availability of information about financial and income situation of the borrower;

- Loss – such loans are unrecoverable or repayable only partially and in very small amounts. Loss loans are loans with instalments overdue more than 361 days; the bank has no information about financial and income situation of the borrower again for more than 361 days. This category also contains loans provided to borrowers that are in bankruptcy proceedings.

The regulation also obligates banks to create reserves and provisions for classified loans. The following values of coefficients has been set: 5 % of face value of watch loans, 20 % of face value of substandard loans, 50 % of face value of doubtful loans and 100 % of face value of loss loans. These criteria and coefficients were applied until the end of 2002. Later changes involve only the level of tax deductible reserves

and provisions.

Starting from 1st January 2003, in accordance with the New Basel Capital Accord, banks have the choice to classify single loans or asses changes in the value of credit portfolios with the use of statistical models. In the case of credit portfolio assessment, banks have to create credit portfolios that concern a sufficient number of homogenous loans. The length of the underlying historical observation period must also be sufficient. Then the reserves and provisions are created amounting to statistical estimation of expected losses.

In the case of a single loan classification, banks use criteria described above. The reserves and provisions are created as a multiple of its face value and its corresponding coefficient; the coefficient for watch loans has been lowered from 5 % to only 1 % of the face value of loans.

3.3 Credit Risk Management in Banking

Starting the 1st of January 2003, a completely new arrangement of the Czech National Bank on credit risk management has come into force. This arrangement imposes the following obligations to banks:

- banks must have an appropriate strategy of credit risk management concerned mainly with: the acceptable level of credit risk; methods of credit risk management; limits which will be applied; basic requirements for the bank's organisational structure including competence and responsibilities in credit risk management;

- banks have to establish such competence and responsibility of divisions and employees so that the risk of potential conflict of interest will be reduced as much as possible;

- according to the level of banks' activities, banks must have a system for credit risk measuring and monitoring. An effective credit monitoring system locates all important sources of credit risk and evaluates their impact on earnings and costs and on changes in values of assets and liabilities. Such systems provide adequate information about credit risk exposure and level of credit risk.

5. Conclusion

The aim of this paper is to characterise credit risk and to describe how credit risk regulations have been gradually changedin the Czech Republic. Credit risk regulation involves mainly setting limits of credit exposure and the constitution of criteria for nonperforming loans and rules for loan loss provisions and reserves. Starting 21st May 1992, the first limitations towards risk exposure were set. On the 1st of April 2002 credit exposure was divided into credit exposure for banking portfolios and credit exposure for trading portfolios.

While the obligation to meet limits of credit exposure was introduced in 1992, the rules for loan classification were defined later, on the 4th of July 1994. Loans were divided into 5 categories: standard, watch, substandard, doubt and loss. The arrangement has also obligated banks to create reserves and provisions for classified loans. From the 1st of January 2003, in accordance with New Basel Capital Accord, banks had the choice to classify single loans or asses the change of the value of credit portfolios with the use of statistical models.

A completely new arrangement from the Czech National Bank about credit risk management came into force last 1st January 2003. This arrangement is in accordance with principles for the management of credit risk issued by the Basel Committee on Banking Supervision.

Abstract

Příspěvek ve své první části charakterizuje úvěrové riziko; vývoj úrovně úvěrového rizika v České republice je dokumentován na základě vývoje podílu klasifikovaných úvěrů. Další část příspěvku se zabývá vývojem regulace úvěrového rizika v České republice, popisuje změny ve vývoji regulace úvěrové angažovanosti, vývoj zásad pro klasifikaci pohledávek z úvěrů a rovněž nové opatření ČNB o řízení úvěrového rizika.

References

[1] BESSIS, J. *Risk Management in Banking.* Chichester: John Willey & Sons, 1998. ISBN 0-471-97465-X.

[2] BLOEM, AM., GORTER, CN. The Treatment of Nonperforming Loans in Macroeconomic Statistics*. IMF Working Paper*, 209, 2001.

[3] PIRNER, D. Risk Management v českém bankovnictví. *Bankovnictví*, 4, 2003.

[4] *Principles for the Management of Credit Risk*. Basel: Basel Committee on Banking Supervision, 2000.

[5] *The New Basel Capital Accord.* Basel: Basel Committee on Banking Supervision, 2001.

[6] www.cnb.cz

THE NEW POSSIBILITIES FOR THE DEVELOPMENT OF THE BANKRUPTCY / SOLVENCY MODELS[1]

František Kalouda

Key words

corporate financial crisis prevention, trends in b/s models development, Z – function, information capability and transparency of the method, golden rules of finance in the new role, empirical tests of the new method applicability, conclusive evidence of empirical tests, casual relations of the new model.

1. Introduction

The theory of the financial and analytical methods more or less precisely distinguishes between the solvency models and bankruptcy models [Sedláček (2002)], or classifies prediction models [Sůvová (1999)] on the basis of their information capability. This classification is not decisive for the purposes of this paper, and so we will speak about the models of this type in general as about bankruptcy/solvency models, without closer differentiation.

But still, we will prefer an insight in the company's future into the synthetic part of the paper. From this point of view, the current situation of the company appears as less problematic and we will assume the existing methodic apparatus of the firm's financial analysis to evaluate it.

This paper has been prepared with the support of the GAČR project called "Comparison of Financial Markets Development in the Czech Republic and EU Countries", grant project registration No. 402/02/1408.

[1] The paper is published with the support of the Czech Grant Agency (grant GAČR No. 402/02/1408 "Comparison of the Financial Markets Development in the Czech Republic and in the European Union").

2. Objective and Methodology

2.1 Objective of the Paper

This paper's objective is above all to highlight two basic development trends in outlining and using the firm's economic performance evaluation models (that are contradictory to a certain extent, although they have significant points of contact) and assess the current situation in the development of these models.

Another goal of the paper is to present the results achieved so far by the research team in the Department of Finance of the Faculty of Economics and Administration, Masaryk University in Brno (hereinafter as the research team).

In conclusion, the paper will present one of the possible forecasts of further development of the solvency/bankruptcy models, namely the one that is dealt with (in the framework of the said grant project) by the research team members. This above mentioned forecast is completed by the proposal of causal relations of the new developed solvency / bankrupcy model.

2.2 Decisive Methodical Elements

The methodical basis of the paper consists of the following four principles:

a) the starting point for the information capability standards of solvency/bankruptcy models is the Z-function, published sufficiently in the Czech Republic (for instance [Vlachynský (1999)]) and to a certain extent with proven employment in our context [Černá et al. (1997), Kovanicová, Kovanic (1998), Buchtíková (1998)];

b) the research team considers **using** the previously formulated decision rules of corporate financial management, **the so-called "golden rules of financing"** (hereinafter as "the golden rules") as **one of the possible development trends** of bankruptcy / solvency models (see Appendix 3);

c) comparison of the information capability of "the golden rules" and the Z-function will be made on the basis of **the parallel processing of authentic corporate data (results of surveys) using both methods**;

d) the research activities of the team will take the path of building bankruptcy / solvency models (hereinafter as b/s models) as simple as possible, ideally constructed on a single starting ratio;

e) an important source of inspiration for reaching the goal c) will be the information about bank financial management decision models available, fully respecting **ethical limitations of such models,** consisting in the undoubted necessity to respect the bank secret (resulting in permanent inaccessibility to certain information).

3. Results

3.1 Overview of Basic Development Trends of Solvency / Bankruptcy Models

The bankruptcy and solvency models have been (in the historically reasonable perspective) in general developed in two directions.

These are especially the procedures, which construct more or less sophisticated special functions using the statistical processing of real data of both successful and bankrupt firms. The output of the models is one single value of those criterial functions.

Such models are well known and very frequently used in the theory and practice of financial decision making of firms. The representatives of this way of creating the bankruptcy / solvency models are for example the Z-function [Altman (1968)], or later local products such as the IN models [Černá et al (1997)] or Professor Vysušil's fast test [Vysušil (1994)]. It is useless to cite their advantages. Let us rather mention the basic drawbacks that are the immediate reason for further development of solvency/bankruptcy models.

a) Difficult protection against misuse of "sensitive" input data, especially profit indicator types;

b) difficult execution of parametric sensitivity tests, requiring going back to the current situation causes from the resulting value of the criterial function.

The second group of procedures abandons the effort to create a single, integral special function that would give with its value an overall characteristic of the current (and maybe the future) situation of the analyzed firm.

These approaches prefer an analysis of a few absolute or relative indicators and the ideal situation is apparently represented by using a single indicator. In this case, a relatively good "transparency" of results in respect of their link to the desired situation of the firm's basic financial parameters is an advantage. Except for "the golden rules", also procedures used in banks for client solvency testing may be ranked among this group of methodic tools.

3.2 Comparison of "the Golden Rules" and Z-Function Information Capability

We respect the previously formulated rule taking the Z-function outputs as a standard in respect of the information capability (including the capability to predict the firm's future financial situation).

The graphic representation of the correlation between this standard's output and the golden rules is shown in the Figures 1 to 6 in the Appendix I. The input data for the diagrams are given in the Appendix II.

3.3 Principles of a Concrete Bankruptcy/Solvency Model (b/s Model) Development

The so far obtained knowledge and partial results in the procedure outlined in 3.1 and 3.2 permit to formulate the principles that should be applied to the target b/s model solution.

a) Respecting the principle of a single initial relative indicator;

b) statistical methods (correlation, regression) will be used above all for testing the level of information capability agreement between the Z-function and for "the golden rules";

c) the b/s model construction will prefer (if possible) causal relations to statistical models;

d) the following simple concept of the model's informative value based on a two-level logic will be sufficient from the viewpoint of the discussed b/s model informative capability:

- good current situation (good future);
- bad current situation (bad future).

3.4 Principles of the Structure the New Developed b/s Model

Ad a) The appropriate inputs parameters are followings:

- sales;
- cost of capital and
- rentability of the firm.

For the rentability of the firm are useful ratios

- ROA and/or
- ROE.

Ad c) The structure of the new b/s model is focused primarily to the possibilities ad point c) in previous subchapter. The reason for this focus is fact, that this concept is extraordinary useful for the prove of consequencies which are connected with non respect to the "golden rules".

The starting point for construction the causal relations is model DuPont,

which is developed to the "invDuP model". The outputs of this "invDuP model" are either

- the new values of ROA/ROE ratios or
- the new values of performance of the firm (sales).

The nowadays version of the "invDup model" is presented in Appendix 4.

4. Discussion

4.1 Abandonment of Synthetic Indicators as Outputs of Complicated Special Functions

An attractive goal as such is reaching an independence of the b/s model information capability on input data handling. Even reaching this goal has to be taken as a sufficient justification of the research team's endeavor.

Increased b/s model transparency would mean a new quality in respect of interpretation of ouputs of firm's current (financial) situation analysis, method and transformation of such outputs into a concrete managerial decision.

4.2 Correlation Between Z-Function Values and the "Golden Rules"

In principle, the obtained results confirm (as expected) a higher agreement (higher level of correlation) in joint-stock companies. An exception is a surprisingly high correlation between the Z-function and the "golden rule" of financing in the limited liability companies.

The most sensitive indicator of errors in the corporate financial management still appears to be the "golden rule" of risk adjustment. However, this opinion cannot be considered as fully proven yet. Employment of the below tools will be apparently necessary:

- selected statistical methods (correlation, regression) and/or applications of the theory;

- theory of selective investigation (problem of input data sets representativeness) or

- hypothesis testing.

4.3 B/S Model Development Principles

The crucial element of b/s model construction is obviously selection of input indicators. If the principle of a single input relative indicator will continue to be respected (because of the model transparency), tackling the problem will be impossible without precise determination of the indicator.

It is difficult even to estimate the complexity of formulation of causal relations discovered in the future.

We have to expect the necessary simplification of the number of possible parameters as well as the requirements for precision of formulation. We assume that a solution is possible in principle, as the requirements for the b/s model information capability should not be unreasonable (refer to d) in 3.3).

5 Conclusion

The results obtained so far permit to express a slight optimism regarding the possibility to reach the research team's goal.

To reach the declared goal it will be definitely necessary to go on in the verification of the information capability of "the golden rules" with possible impact of the results of such analyses on selection of the input relative indicator.

Further work of the research team should be focused on formulation of key causal relations between the selected "golden rule" value and the desired values of the decisive indicators that can be utilized in the corporate financial management.

Abstract

Příspěvek je věnován tvorbě metodik prevence finančních krizí firmy, včetně presentace pokroku v návrhu nových metodických nástrojů predikce krizového stavu. Podstatou zmíněných nových metodik je využití z tohoto pohledu dosud nedoceněných tzv. „zlatých pravidel financování". Mimo teoretických vstupů jsou presentovány první výsledky použitelnosti nových metodik prevence finanční krize firmy a návrh konstrukce kauzálních vazeb navrhovaného modelu.

References

[1] ALTMAN, E. I. Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance*, September 1968, vol. XXIII, no. 4, pp. 589-609.

[2] ALTMAN, E. I. *Corporate Financial Distress*. New York: John Wiley, 1983.

[3] ALTMAN, E. I. A Further Empirical Investigation of the Bankruptcy Cost Question. *Journal of Banking and Finance*, September 1984, pp. 1067 – 1089.

[4] BUCHTÍKOVÁ, A. (1998). *Příspěvek k hodnocení finanční bonity bankovních klientů* (Contribution to Evaluation of Bank Clients' Solvency). Praha: Institut ekonomie ČNB, VP c. 88, 1998.

[5] ČERNÁ, A., DOSTÁL,J., SŮVOVÁ, H., ŠPAČEK, E., HUBÁLEK, K. (1997). *Finanční analýza (Financial Analysis).* 1st edition. Praha: Bankovní institut, 1997.

[6] HIGGINS, R. C. (1997). *Analýza pro finanční management (Analysis for Financial Management)*. 1st edition. Praha: Grada Publishing, 1997.

[7] KALOUDA, F. (2002). Prospects for Development of Bankrupcy/Solvency Models in Firm´s Economic Performance Evalution. In *Transition Countries Joining the European Union*. Proceedings the Second International Joint Symposium on Business Administration, Silesian University in Opava, Cannakkale Onsekiz Mart University, Karviná, 17th – 19th June 2002, pp. 179 – 186. ISBN 80-7248-172-X. ISBN 975-8100-22-X.

[8] KLEINEBECKEL, H.(1993*). Řízení financí a likvidity (Finance and Liquidity Management)*. 1st edition. Praha: BaBText 1993.

[9] KOVANICOVÁ, D., KOVANIC, P. (1998). *Poklady skryté v účetnictví (Hidden Treasures of Accounting)*. 5th edition. Praha: Polygon, 1998.

[10] KRALICEK, P. (1993). *Základy finančního hospodaření (Essentials of Financial Management).* Praha: Linde 1993.

[11] KRIŠTOFÍK P. Determinanty zadlženia a modelovanie kapitálovej štruktúry (Indebtedness Determinants and Capital Structure Modelling). In*: Finanční řízení podniků a finančních institucí 2. díl – vybrané* příspěvky *(Financial Management of Companies and Financial Institutions, Part 2, selected papers)* Proceedings the 3rd International conference of VŠB TU Ostrava, Czech Republic, 11th – 12th Sept 2001, pp. 280 –285.

[12] SEDLÁČEK, J. *Účetní data v rukou manažera – finanční analýza v řízení firmy (Accounting Data in the Hands of a Manager – Financial Analysis in the Corporate Management)*. 2nd amended edition. Praha: Computer Press, 2001.

[13] SYNEK, M. et al.(2000). *Podniková ekonomika (Corporate Economy)*. 2nd edition. Praha: C.H. Beck, 2000.

[14] VALACH, J. et al.(1997). *Finanční řízení podniku (Corporate Financial Management)*. 1st edition. Praha: Ekopress, 1997.

[15] VLACHYNSKÝ, K.(1999*). Podnikové financie (Corporate Finance)*. 1st edition. Bratislava: Súvaha, 1999.

[16] WÖHE, G. *Úvod do podnikového hospodářství (Introduction to Corporate Management)*. 18th edition, Praha: C. H. Beck, 1995.

[17] ZALAI, K. *Finančno - ekonomická analýza podniku (Corporate Financial and Economic Analysis*). 1st edition. Bratislava: Sprint, 1997.

[18] ZALAI, K. Význam a metódy prognózovania finančnej situácie firmy (Importance and Methods of Corporate Financial Situation Forecasting). Biatec, 11, 1996.

[19] SW package Finanční kancelář profesionál (Professional Financial Office), ATLAS software a.s.

http://www.albertina.cz/
http://www.aspekt.cz
http://www.cnb.cz
http://www.czso.cz/cz/cisla
http://www.ekoinfo.cz
http://www.info.mfcr.cz/ares
http://www.justice.cz
http://www.pse.cz
http://www.scp.cz

Appendix I

Graphic representation of correlation between Z-function and "goldenrules" outputs

Figure 1

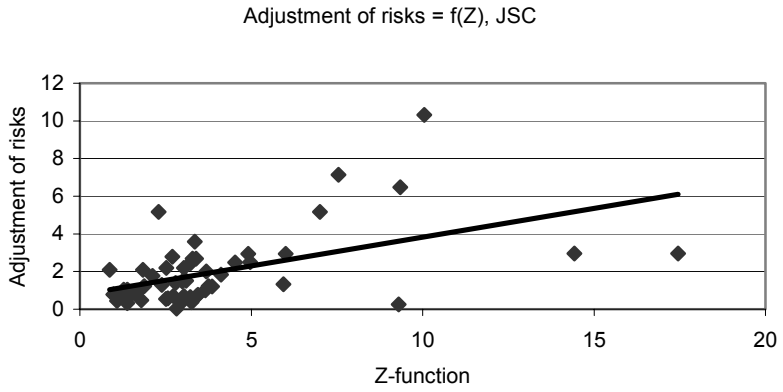


Figure 2

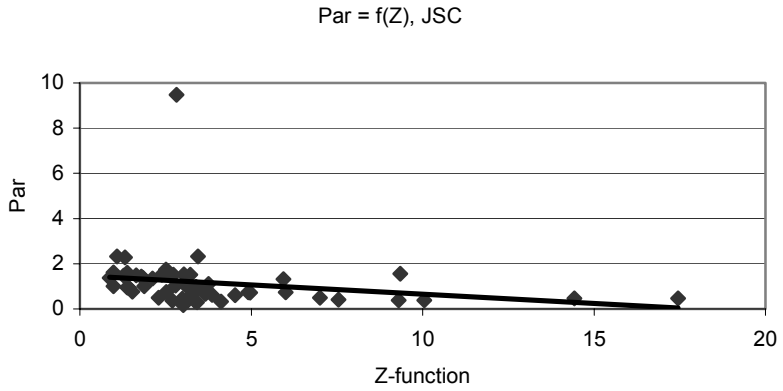


Figure 3

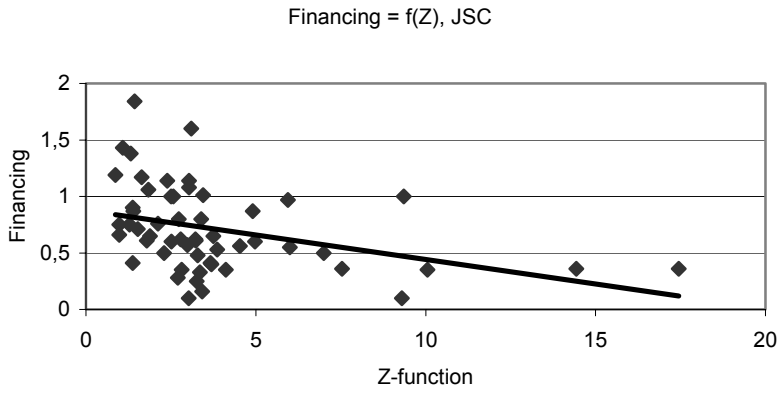


Figure 4

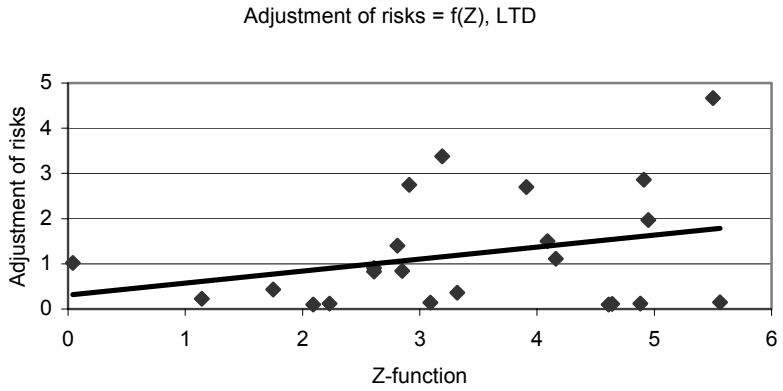


Figure 5

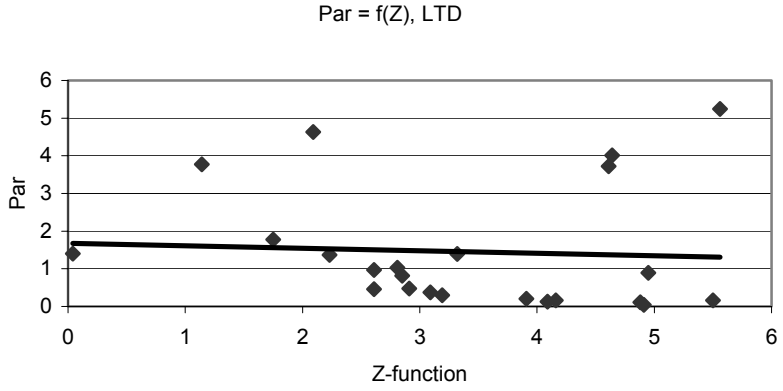
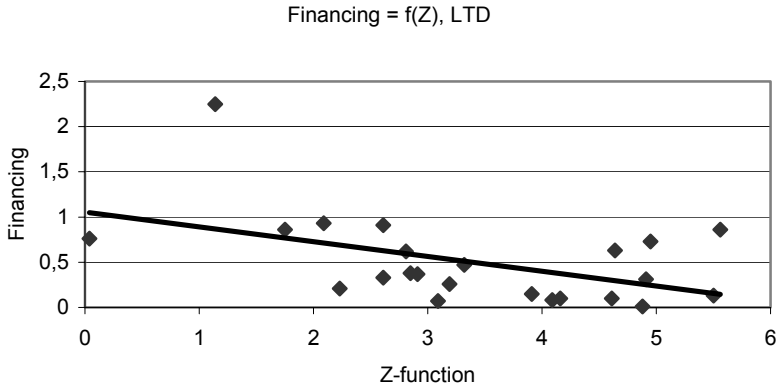


Figure 6



Appendix II

Input data

Comparison of criteria (JSC)

Z	Adjust.	Par	Fin.
3,26	0,38	0,61	0,25
14,43	2,95	0,47	0,36
0,98	0,78	1,62	0,75
10,05	10,31	0,38	0,35
3,69	2,01	0,75	0,4
4,12	1,84	0,32	0,35
3,03	2,19	1,12	1,08
3,42	0,72	0,3	0,16
1,32	0,55	2,28	1,38
6	2,94	0,74	0,55
9,3	0,26	0,38	0,1
2,7	2,78	0,37	0,28
9,35	6,47	1,56	1
7	5,17	0,5	0,5
0,87	2,09	1,37	1,19
2,3	5,17	0,5	0,5
2,99	1,48	0,45	0,57
17,45	2,95	0,47	0,36
5,94	1,33	1,32	0,97
3,1	1,52	1,07	1,6
3,86	1,21	0,62	0,53
3,03	0,7	1,53	1,14
3,45	0,76	2,33	1,01
4,91	2,94	0,74	0,87
1,43	0,91	0,93	1,84

Comparison of criteria (Ltd.)

Z	Adjust.	Par	Fin.
4,95	1,97	0,89	0,73
2,61	0,91	0,97	0,91
4,09	1,5	0,13	0,08
5,5	4,67	0,16	0,13
1,75	0,43	1,78	0,86
4,16	1,11	0,16	0,1
0,04	1,02	1,4	0,76
2,23	0,12	1,37	0,21
5,56	0,15	5,24	0,86
4,64	0,11	4,01	0,63
4,61	0,1	3,72	0,1
2,61	0,83	0,46	0,33
3,09	0,14	0,37	0,07
2,85	0,84	0,82	0,38
3,32	0,36	1,39	0,47
1,14	0,23	3,77	2,25
4,91	2,86	0,04	0,31
4,88	0,12	0,11	0,01
2,81	1,4	1,03	0,62
2,09	0,1	4,63	0,93
3,19	3,38	0,3	0,26
2,91	2,75	0,48	0,37
3,91	2,7	0,2	0,15

1,79	0,47	1,43	0,61
1,53	0,84	0,76	0,71
3,75	1,22	1,1	0,65
1,88	1,22	1,01	0,65
4,97	2,5	0,72	0,6
2,12	1,77	1,34	0,76
7,54	7,14	0,41	0,36
2,57	0,57	1,66	1
1,08	0,44	2,32	1,43
3,02	0,46	0,17	0,1
1,64	0,84	1,49	1,17
3,66	1,01	0,67	0,41
2,51	0,54	1,74	1
2,52	2,19	0,75	0,6
1,28	1,04	1,47	0,75
2,82	0,04	9,47	0,35
3,29	2,68	0,65	0,48
1,84	2,09	1,37	1,06
3,39	2,69	0,98	0,8
2,73	0,7	1,51	0,8
3,23	2,45	0,84	0,61
2,79	1,4	1,03	0,62
3,35	3,59	0,36	0,33
1,38	1,04	0,95	0,9
4,53	2,49	0,61	0,56
3,22	0,64	1,51	0,62
1,39	1,01	0,97	0,87
0,98	0,78	1	0,66
1,38	0,33	1,6	0,41
2,39	1,3	1,52	1,14

Appendix III

„Golden rules“

a) g.r. Adjustment of risk

OWN RESOURCES / NOT OWN RESOURCES = min 1

b) g.r. Pari (golden rule of balance)

FIX ASSETS / OWN RESOURCES = max. 1

c) g.r. Financing

FIX ASSETS / (EQUITY + NOT OWN RES. $_{\text{LONG TIME}}$ **) = max. 1**

Appendix IV

"invDuP model"

a) The new values of ROA/ROE ratios

ROA $_{N}$ **= (sales - total costs** $_{N}$**) : (total assets + Δ debt)**

ROE $_{N}$ **= (sales – total costs** $_{N}$**) x equity**

b) the new values of performance of the firm (sales).

sales $_{N}$ **= ROA** $_{N}$ **x (total assets + Δ debt) + total costs** $_{N}$ or

sales $_{N}$ **= ROE** $_{N}$ **x equity + total costs** $_{N}$

Comments: Index $_{N}$ means, that this value of parameter or ratios is considered like new or desirable one.

UNILATERAL EUROIZATION: A WRONG WAY FOR THE CZECH REPUBLIC[1]

Daniel Stavárek[2]

Key words

euroization, Euro, monetary union, Maastricht criteria, monetary policy

1. Introduction

Results of the referendum about the future of the Czech Republic in the integrated Europe which took place in June 2003 clearly set the 1st of May 2004 as the day of the Czech Republic's accession to the European Union (EU). This logically leads to the growing ever stronger discussion related to the involvement of the Czech Republic in the process of European monetary integration and the project of the European Monetary Union (EMU). However, the question that must be answered is not whether the Czech Republic should join the EMU or not. Membership in the EMU belongs to the integral parts of the *acquis communitaire* which the Czech Republic has already accepted and therefore the participation on the EMU is considered as an automatic step following the membership in the EU. Consequently, the issue of crucial importance is rather the choice of the optimal sequencing and appropriate method of introducing the Euro.

2. Possible Methods of Introducing the Euro

Generally, there are three possible scenarios of introducing the Euro as a legal tender in the Czech Republic. The fundamental differences among them stem from the speed, and the institutional and legislative framework.

[1] The paper is published with the support of the Czech Grant Agency (grant GAČR No. 402/02/1408 "Comparison of the Financial Markets Development in the Czech Republic and in the European Union").

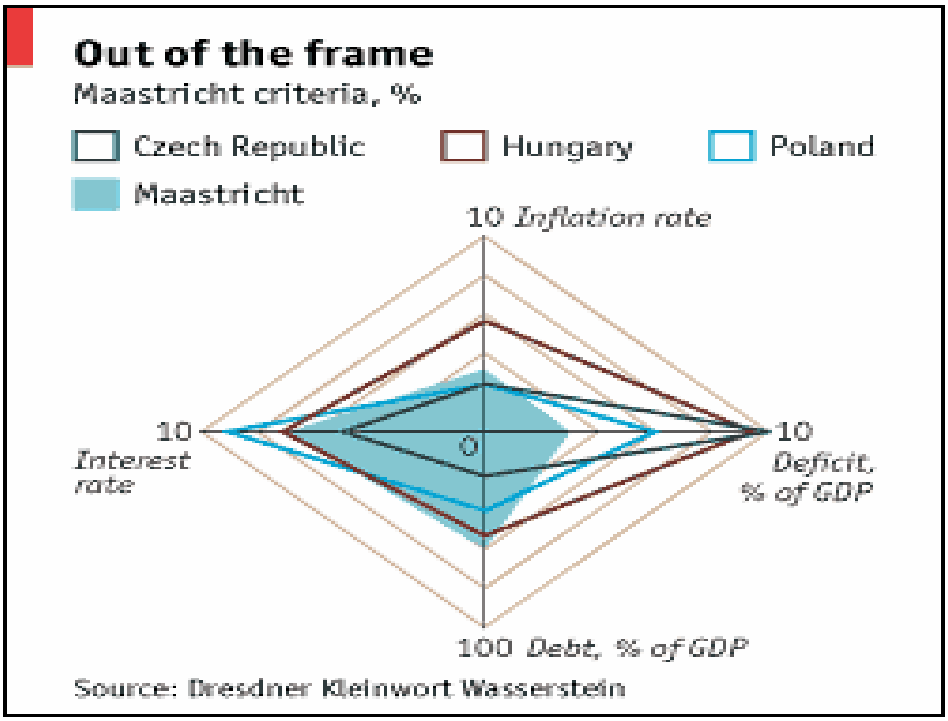
[2] Silesian University, School of Business Administration, Department of Finance. Karviná, Czech Republic. e-mail: stavarek@opf.slu.cz, phone +420 596 398 309.

2.1 Fulfillment of the Maastricht Criteria

The most probable strategy of introducing the Euro is without doubt the conventional approach based on fulfillment of the convergence Maastricht criteria. These criteria are defined and specified in the Treaty of Maastricht. The process of introducing the Euro is divided in this approach into three stages: (i) period before joining the EU, (ii) period of membership in the EU before introducing the common currency, and (iii) final stage of introducing the Euro and membership in the EMU. Above all the middle stage represents the period of notable significance. All accession countries will have to coordinate and adapt their policies to the EU's economic framework and set and maintain the appropriate exchange rate arrangement at this time.

The duration of the middle stage will depend on the success of each country in the process of convergence as well as on the decision when the country will enter and how long it will stay in the European Exchange Rates Mechanism II (ERMII). This mechanism should guarantee stability of the accession countries' currencies; however, its shape and construction will finally play a crucial role. The actual level of convergence of three accession economies with the EMU is shown in Figure 1.

Figure 1 - Maastricht Criteria and Their Fulfillment (2002)



Source: Dresdner Kleinwort Wasserstein.

2.2 Accelerated Fulfilment of the Maastricht Criteria

Acceleration towards introducing the Euro might be achieved by shortening as much as possible the magnitude of the middle stage. This equals two years during which time every candidate country is supposed to participate in the ERM II. The mechanism ERM II is quite unclear and causes concerns in accession countries. Probably the most important drawback of the ERM II can be seen in its foundation and construction. The ERM II is based on a quasi-fixed exchange rate arrangement which was widely applied in the 1980s and 1990s. However, since then, the international financial and foreign exchange markets have been going through many significant changes which have made the hybrid exchange rate regimes inefficient and old-fashioned. Actually, the general suggestions about appropriate exchange rate arrangements are either to establish an absolutely fixed regime such as a currency board, monetary union or euroization, or to implement and maintain a free-floating exchange rate.

The Czech Republic is a small open economy with a floating exchange rate, considerably distanced from the real economic indicators of the EU core, and its monetary policy is based on inflation targeting. These aspects in combination with staying in the ERM II longer than the necessary two years might affect the economy very negatively. In particular, the risk of the monetary targets' conflict and the wrong central parity's impacts might be higher. The obligation to maintain the exchange rate stability set by the ERM II would lead to the loss of an autonomous monetary policy. Consequently, this would restrict the ability of monetary policy to be affected counter-cyclically and hinder a smooth convergence process.

However, the representatives of the European Central Bank (ECB) express permanent scepticism about attempts of some accession countries to introduce the Euro as soon as possible. Pointing out the indispensable stabilization and strengthening of the fiscal policy and public finance, they urge the candidate countries to follow a slower and more balanced way of accepting the Euro currency. Simultaneously, they try to introduce the ERM II not only as one of the Maastricht criteria but more so like a pillar and appropriate strategy of monetary policy after joining the EU.

2.3 Unilateral Euroization

The last possible strategy of implementing the Euro as a legal tender is euroization. Economic advantages and disadvantages of the euroization are widely discussed in literature, and the third part of this paper deals with a similar analysis. The comprehensive review and summary of opinions and proposals considering the euroization can be found in Backé and Wójcik (2002).[3] But a solely economic point of

[3] Euroization is suggested as the best way for accession countries in e.g. Mundell (1999). Concrete proposals of domestic currency's substitution by the Euro are Bratkowski and Rostowski (2000) for Poland or Gros (2001) for the Balkan countries.

view would be misleading. It is necessary to take into account important aspects of international policy as well.

The EU has manifested very clearly that introducing the Euro as a legal tender in any of the candidate countries without its approval will not be considered as an adequate way of achieving the full monetary integration within the EMU (Ecofin, 2000). Even the president of the ECB has tipped off that accepting the Euro in conflict with the Maastricht Treaty's principles will not be welcomed (Duisenberg, 2001). The EU's attitude limits the possibility of euroization only on unilateral euroization directed by the given country and without any support of the EU and the ECB. Such a decision would represent a catastrophic break of European law and accession agreements in which the Czech Republic and other countries have pledged to assume all exchange rate issues as a field of common interest of the new member countries and the EU. As a consequence, the Euro in the Czech Republic or in any other unilaterally euroized country would not be backed by either the ECB or the Czech National Bank because it would not be able to issue money nor dispose of sufficient foreign exchange reserves.

3. Analysis of Economic Benefits and Costs of Unilateral Euroization

The basic tool of analysis for euroization impacts on the national economy is the following cost-benefit analysis:

3.1 Benefits from Unilateral Euroization

- *greater exchange rate certainty*

The widely held opinion stems from the fact that the best way to avoid financial crisis connected with massive capital inflows and outflows is sound and balanced economic policy, hard exchange rate regimes, strengthening of the financial sector stability, and effective supervision. However, the relatively high risk of exchange rate shocks without any link to fundamental economic development still remains. Euroization represents, according to its supporters, an automatic and self-regulating system of adjustments in money supply, which along with a hyper-fixed exchange rate protect the economy against fast and dangerous flows of short-term speculative capital.

- *increase of credibility and lower inflation*

It is often argued that a government lacking policy credibility and a track record can "borrow" credibility by anchoring the national currency to a strong and credible currency. However, it is questionable whether credibility can be borrowed, for the strength of a chain cannot be greater than the strength of its weakest link, which in this case is the credibility of the national government commitment to such a policy.[4] A very

[4] Suppose Russia had adopted a Currency Board at the end of August 1998, after defaulting on over USD 40bn worth of government dollar debt, plus an even larger

frequent reason for the substitution of domestic currency for foreign and more stable currency is high inflation and the lack of the central bank's capacity to apply an efficient anti-inflation policy. Euroization may contribute to the reduction of inflation and maintaining it at the optimal level.

- *lower transaction costs*

Undoubtedly the use of a common currency as both measure of value and medium of exchange leads to lower transaction costs, though these savings have probably been exaggerated. It is true that anybody switching from one of the 12 currencies of the Eurozone into each other in succession and back to the initial currency would lose most of its initial stake in commission charges; for a modest 2 per cent commission charge on each transaction one would lose almost one quarter of the initial amount.

- *lower interest rates*

Lower nominal interest rates in terms of the reference currency are likely, thus promoting investment and growth. The country risk premium, however, in practice is never completely eliminated and can remain substantial. Undoubtedly both the government and private investors benefit from a common currency through their ability to borrow internationally in their domestic currency, the same in which expenditure is denominated and actually incurred.

3.2 Costs of Unilateral Euroization

- *loss of autonomous national monetary policy*

A fixed exchange rate regime in the form of euroization necessarily restricts the scope for domestic monetary policy. The permanent adoption of a common currency necessarily delegates monetary policy to the Central Bank responsible for the maintenance of price stability. Moreover, all accession countries are facing extremely challenging issues of social welfare reform, on a greater scale than the rest of Europe, which may require country-specific approaches to macroeconomic management. The policy followed by such a Central Bank may be at odds with the country's fundamentals. The probability of asymmetric shocks within EMU is being reduced by adherence to the Maastricht criteria and by the "stability and growth" pact, but cannot be eliminated. *A fortiori*, euroized countries that are not in EMU will be more likely to suffer from asymmetric shocks.

---

public debt denominated in roubles; it seems naïve to believe that a commitment to a permanently fixed parity to hard currencies would have been judged as credible by international financial markets.

- *loss of seigniorage*

Euroization involves some loss of seigniorage – the revenue obtained from issuing domestic currency – usually defined as the increase in real value of base money. Under currency replacement the loss of seigniorage on the mass of foreign exchange in domestic circulation is total, except that a seigniorage sharing arrangement could be agreed with the Central Bank that governs the chosen currency. In transition economies seigniorage is usually fairly low, of the probable order of 1-2 per cent of GDP.[5]

- *loss of lender of last resort (LLR)*

In principle the LLR function could be partly fulfilled by the Central Bank in the common currency, even without membership of the currency union. But there is no statutory provision for such a role. A formal arrangement for the ECB to act as LLR to countries that lacked convergence even by the Maastricht criteria would expose the euro to a very great risk; without such an arrangement, financial fragility would ensue. The problem would be aggravated by the fact that the ECB could not take on any responsibility for the supervision of financial institutions in euroized countries.

- *invoicing and external debt denomination*

The effectiveness of euroization is influenced by some minor problems which are not difficult to tackle, though not automatically, and at a cost. For instance, the euro may not be the preferred currency in the country's invoicing practices in foreign trade, which may be difficult to change. External debt may be denominated in other currencies (mostly dollars) and would have to be redenominated or offset by operations in forward markets. While the banking sectors in accession countries are generally controlled by banks from the EU and EMU, and while foreign trade is also focused on EU and other candidate countries, many countries have raised a very large part of their external debt in US dollars. In 1997 the share of dollar-denominated external debt was 77.9 per cent in the Czech Republic, 75.1 per cent in Bulgaria, 61.6 per cent in Lithuania, 46 per cent in Poland, against DM shares respectively of 4.7 per cent, 4.7 per cent, 6.2 per cent, and 9.9 per cent (Nuti, 2002).

- *real revaluation*

For any fixed nominal exchange rate, subsequent unavoidable real revaluation necessarily involves a positive inflationary differential with respect to the pegged currency. Far from aiding the control of inflation, in such circumstances any fixed exchange rate regime can turn into an inexorable inflationary machine. The necessary real revaluation could only be achieved without inflation through a nominal revaluation.

[5] Some exceptions are Albania (where it is of the order of 10 per cent of fiscal revenues, followed by Belarus and Romania, confirming the view that the loss is probably greater for countries with weak fiscal collection or low central bank independence).

4. Conclusion

Applying the impacts of euroization on the Czech Republic, we may conclude that unilateral euroization will bring more complications than benefits. Besides the negative foreign policy effects, the loss of national monetary policy seems to be the most significant drawback of euroization. The macroeconomic analysis of the Czech economy shows that theoretical advantages of the euroization are irrelevant. The Czech National Bank disposes of high credibility, maintains a low rate of inflation, and interest rates are absolutely the same as in the EMU. The risk of financial crisis is likely to be low and on the contrary, the implementation of the fixed exchange rate might cause an overheating of the economy as well as inflation pressures.

We find that the best way of introducing the Euro in the Czech Republic and achieving high nominal and real convergence as soon as possible, is joining the EMU through the official way, through fulfilment of the Maastricht criteria.

Abstract

S blížícím se vstupem kandidátských zemí do Evropské unie sílí odborné diskuse o vhodném termínu a způsobu přijetí společné měny euro. Velmi často je kromě oficiální cesty splnění maastrichtských kritérií zmiňována možnost jednostranné euroizace. Cílem příspěvku je definovat klíčové aspekty tohoto jednostranného aktu a aplikovat jeho obecné výhody i problematické stránky na konkrétní příklad České republiky. Pozornost je věnována zejména schopnosti euroizace výrazně snížit transakční náklady zahraničního obchodu, zajistit přijetím silnější a kredibilnější měny nižší úrokové sazby nebo přispět k omezení volatility devizových kurzů a kapitálových toků způsobujících finanční krize. Analyzovány jsou také negativa euroizace jako potřeba držet významné množství devizových rezerv, ztráta autonomie měnové politiky, nesoulad mezi ekonomickými fundamenty a nominálním devizovým kurzem či ztráta ražebného. Provedená analýza dospěla k závěru, že jednostranná euroizace nepředstavuje ekvivalent k maastrichtským kritériím a její uplatnění by neznamenalo pro Českou republiku v průběhu integračního a konvergenčního procesu významný přínos.

References

[1] BACKÉ, P. – WÓJCIK, C. *Unilateral Euroization: A Suitable Road Towards Joining the Euro Area For Central and Eastern European EU Accession Countries?* Tallinn: National Bank of Estonia, 2002. Access from www: < http://www.cbbh.gov.ba/april_konferencija/wojcik.pdf >

[2] BRATKOWSKI, J. – ROSTOWSKI, J. *Unilateral Adoption of the Euro by EU Applicant Countries: The Macroeconomic Aspects*. Paper from the 6th International Dubrovnik Conference, 2000.

[3] DUISENBERG, W. *The ECB and the Accession Process.* The Speech of the ECB President on November 23, 2001. Access from www: < http://www.ecb.int/key/01/sp011123.htm >

[4] ECOFIN Report to the European Council in Nice on Exchange Rate Aspects of the Enlargement. In *European Economy.* 2000, no. 1, pp. 1-3.

[5] GROS, D. *The Euro for the Balkans?* Paper from the Conference When Is a National Currency a Luxury? London, 2001. Access from www: < http://www.london.edu/cnem/Events/Programme/gros.pdf >

[6] MUNDELL, R. Exchange Rate Arrangements in Transition Economies. In BLEJER, M. – ESTRIN, S. *Balance of Payments, Exchange Rates and Competitiveness in Transition Countries.* Boston, etc.: Kluwer Academic Publishers, 1999.

[7] NUTI, D.M. *Costs and Benefits of Unilateral Euroisation in Central and Eastern Europe.* RECEP Research Paper. 2002. Access from www: < http://www.recep.org/rp/nutie.pdf >

CZECH CAPITAL MARKET [1]

Kateřina Kořená

Karel Kořený[2]

Key words

euroization, Czech capital market, function of capital market, Prague Stock Exchange (PSE), RM-System, primary issue, collective investment

1. Introduction

The Czech capital market finds itself in the second decade of its existence; 15 years will have passed since the Velvet Revolution of 1989; the first wave of the voucher privatisation was started in 1992; and trading on the Prague Stock Exchange first began 10 years ago. Therefore, the topic of this paper is to evaluate the current situation of the Czech capital market.

The objective of this paper is to analyse the current Czech capital market. The topics selected are based on the functions of the capital market carried out in developed economies – i.e. stock pricing function, source of financing function and motivational function.

2. Czech Capital Market Organizers

2.1 Prague Stock Exchange

Since its establishment, the Prague Stock Exchange has faced many problems, which were mainly related to voucher privatisation. The main problems were that too many shares were issued (until 1999 more than 1500 shares were traded on the stock exchange) as well as a high volume of direct trading (non-pricing). Gradually, these problems were dealt with. Since 1997 the PSE started to suspend illiquid titles and

[1] The paper is published with the support of the Czech Grant Agency (grant GAČR No. 402/02/1408 "Comparison of the Financial Markets Development in the Czech Republic and in the European Union").

[2] Kateřina Kořená: VŠB-TU, Fakulty of Economics, Department of Finance, Ostrava, Czech Republic. e-mail: katerina.korena@vsb.cz.
Karel Kořený: Silesian University, School of Business Administration, Department of Finance. Karviná, Czech Republic. e-mail: koreny@opf.slu.cz.

the number of shares declined steadily. What also helped to decrease the number of shares was the fact that many companies, which were introduced to the stock exchange within the voucher privatisation, deregistered. However, currently there is the matter of too small a number of shares (see Table 1) as the significant volume of trading occurs with only a few security titles. Such trading takes place within the SPAD segment (Shares and Bonds Market Support System), which the PSE introduced in 1998 and resulted in the reduction of non-pricing trading. In 2002 Erste Bank shares were quoted on the PSE (the first foreign shares on the stock exchange); the company became the majority owner of Česká spořitelna whose shares were consequently withdrawn. The question is whether other significant stocks traded within the SPAD shall remain on the stock exchange following privatisation (Unipetrol, Český Telecom, ČEZ).

Table 1 - Securities registered on PSE markets at 31.12.2002

	Main Market	Secondary Market	Free Market	Total
Shares	5	41	33	79
Bonds	20	18	36	74

Source: Author´s calculations.

Unlike shares the PSE has not been successful in getting bonds trading on its pricing market. However, on the basis of an agreement between the stock exchange and the members of the Czech Club of Bond Traders, the PSE has become a guarantor of the bond market and each day it releases average reference prices of bonds in a file that is part of a stock list. These prices are calculated as a simple average of market quotations, and thus they reflect the current market prices of the traded bonds. Such type of trading is brought about by a different origin of the bond market, which grew gradually according to big investors' needs. The situation as such is convenient for institutional investors, but it also means that middle and small investors are eliminated as the trading is done in very high volumes. However, the bond trading volume has been increasing globally.

The PSE finds delayed trading with derivatives a huge problem. The Securities Commission issued the stock exchange a licence for trading futures (bonds basket, PRIBOR interest rate and the PX-D index). But the trading itself has not started yet. This fact is very unfavourable for the PSE as trading with such instruments (mainly options, for which the stock exchange has still no licence) is becoming very common in nearby stock exchanges (e.g. Warsaw or Budapest). Another question arises with regard to its late introduction to the Czech capital market – whether such trading will arouse an adequate interest as the off -exchange derivatives market works with no problems at all and investors have already been accustomed to hedge according to their needs.

Another failure of the PSE is the nonfunction of the New Market, which was established in 1999 and on which there has been no issues so far. Currently, a possible privatisation of some companies via the stock exchange is being considered, but nothing official is being prepared at the moment.

In the sphere of co-operation with other stock exchanges the situation is unclear. The PSE has declared an already established co-operation with the stock exchanges in Bratislava, Warsaw, Budapest and Ljubljana, but presently, the development of mutual contacts is very rare. The Prague Stock Exchange should also concentrate on the co-operation with developed stock exchanges – mainly in connection with joining the European Union, when the PSE shall become a full member of the European Stock Exchange Federation (now it is an associate member).

2.2 RM-System

Besides the stock exchange there can also be off -exchange organizers of the capital market. In the Czech Republic such an OTC market organizer is the RM-System. In contrast to the stock exchange it is not based on the member principle and thus it permits its customers to enter the capital market directly. The reason behind the establishment of the RM-System was that there grew a huge number of small shareholders as a result of voucher privatisation. The RM-System facilitated such shareholders in their entry onto the capital market and allowed them to sell and buy securities directly. Gradually, securities traders also started trading here and for some time the RM-System served as a market for all securities that were suspended from the stock exchange trading. In 2001 in compliance with amendments to the Securities Act, the RM-System was forced to withdraw illiquid and non-trading issues.

Similar to the Prague Stock Exchange the RM-System does not currently trade with derivatives. The project of technical support to the RM-System when trading with futures on the CTX index, which is traded in Vienna, has not been initiated yet (even though the RM-System started to prepare it in 1998).

Presently,, the total volume of trading is falling steadily even if the RM-System has tried to offer new ways of trading (e.g. via the Internet). Lower investors' interest also brought about a decreased number of trading; at present its number leveled off at sixty. What is considered for the future (also according to the upcoming law on doing business in the capital market) is either the possibility to merge the RM-System with the Prague Stock Exchange or its transformation into a securities trader.

2.3 Review

Efficient market organizers are crucial for a capital market because they support its pricing function. Reviewing the activities of both organizers with regard to their starting conditions after voucher privatisation, it is possible to state that their operations have improved considerably. Clearly, the RM-System has played a certain role in the development of the Czech capital market. After the introduction of the SPAD and the elimination of illiquid issues, the PSE set a proper course. If it wants to keep its position and operation in future, it must immediately start to trade derivatives and begin to co-operate more closely with prospective issuers of primary issues in a way that it

secures an inflow of new issues on its market. Also a closer co-operation with surrounding stock exchanges is necessary.

3. Czech Capital Market as a Source of Financing

For an objective evaluation of this capital market function it is necessary to distinguish between financing of deficit subjects via bonds issue and financing via shares primary issues.

3.1 Bonds Primary Issues

In the Czech Republic bonds issues are representative of the govrnment, which deals with securing its revenue in this manner – they are either planned directly as issues of treasury notes and treasury bonds for the needs of the state budget or by these means the government secures its revenue during unexpected and non pre-planned expenses (e.g. the case of cooperative savings banks). The state indebtedness is ever rising and the point at issue is whether the institutional investors will be permanently interested in government bonds (e.g. at the auction of government bonds in August 2003 the complete issue was not sold, but in the following September auction it was a buyers' market). Nevertheless, next year the government intends to sell debt securities for more than CZK 100 billion, in order to finance the major part of the state budget deficit, which is in the amount of CZK 115 billion for the year 2004. The treasury notes and treasury bonds should create CZK 98 billion (the rest should fall on treasury bills).

Clearly, the corporate sector does not prepare considerable bonds issues in near future, the volume of corporate bonds remains low and bonds are issued mainly by large-sized firms or banks. Smaller issues by minor issuers are far too expensive in terms of issue organization.

In fact, municipalities have not issued municipal bonds on the Czech market since 1998; some of the municipalities that had issued bonds prior to this year had big troubles with their redemption (e.g. Rokytnice nad Jizerou). That is why, the upcoming Bonds Act would limit the bonds issues only to those municipalities having a ministerial approval. Some bigger cities continue issuing bonds (e.g. Prague, Ostrava) but those bonds have been mostly placed on stock exchanges abroad.

3.2 Shares Primary Issues

Currently, corporations do not raise capital by means of the capital market, i.e. on the Czech capital market, primary shares issues do not exist (not taking into consideration the increase of registered capital). Even when the New Market on the Prague Stock Exchange began its operation in 1999, not a single issue has been placed

there. The only corporation (LIMART company from Brno) that planned a primary issue in this New Market in 2001 gave up due to insufficient interest from investors (as a matter of fact, the problem was also its timing during this period of huge attenuation at the stock markets).

3.3 Review

The capital market in the Czech Republic fulfils its source of financing function partially and only for some subjects. It is a significant source of financing mainly for government needs; corporate needs are not being satisfied at the capital market (except for bonds issues of some large companies and banks). Corporations obtain necessary funds mostly by means of bank loans or they try to get capital investment from a sound foreign partner. Non-existence of primary issues of new corporations remains an essential problem of the Czech capital market. Should IPO not be supported as soon as possible in the Czech market (e.g. by privatisation of selected companies via the stock exchange) and when privatised companies shall leave it, the capital market in the Czech Republic shall face its actual end due to an insufficient number of quoted issues on the stock exchange.

4. Collective Investment

Collective investment has been mainly stigmatised by the negative results of the voucher privatisation. As a careful preparation of legal norms was underestimated within the scope of the privatisation process, a number of funds were "tunnelled" (their assets were secretly transferred outside the fund by the management) and the investors' trust in the collective investment subjects has been considerably shaken. The state of collective investment started to change in the year of 1998 with the introduction of the market controller, Securities Commission, as well as after the amendments to the Collective Investment Act were passed.

Currently, the situation in the area of collective investment has levelled off, which is also due to a mandatory transformation of privatisation investment funds and closed-end unit trusts into open-end funds[3]. Opening the funds should have been finished by the end of 2002; by virtue of the changes in legislation this deadline can be extended by one year[4] All funds have undergone a so-called over-licensing and the new rule is that the Securities Commission issues a licence to foreign funds as well, representing almost a fifth or a quarter in the supply of the Czech capital market.

[3] Number of funds see Table 2.

[4] This extension concerns mainly such funds which entered a lawsuit due to an allegedly unsettled engagement transfer from the original investment funds into open-end funds

Table 2 - Number of Czech capital market subjects

Date	31.12.96	31.12.97	31.12.98	31.12.99	31.12.00	31.12.01	31.12.02
Stock Exchange	1	1	1	1	1	1	1
OTC market	1	1	1	1	1	1	1
Broker Companies	519	451	382	131	112	97	84
Investment Companies	153	117	99	52	36	24	19
Investment Funds	173	117	84	50	33	20	12
Unit trusts	296	233	186	93	94	92	91
Closed	174	92	47	19	7	4	0
Open-end	122	141	139	74	87	88	91
Brokers	1317	1487	1537	1543	1547	1547	1602

Source: Author´s calculations.

The volume of assets in the funds offered is increasing gradually; some of the reasons are very low bank interest rates and compulsory termination of anonymous savings books. That is why a number of small investors have been forced to consider a different form of investment. However, Czech investors stay very conservative because deposits of mainly money and bond market funds are rising, and there is a low interest with equity funds (see Table 3).

In future, collective investment shall be influenced by the upcoming Collective Investment Act, which will permit the establishment of new types of funds and will approximate the terminology in this field to the terms used within the European Union. Initially, the act should have been passed in the course of 2003; it is likely to be valid along with new laws on doing business at the capital market and bonds beginning May 2004 (estimated validity is as for the Czech Republic joining the European Union).

Table 3 - Net assets value by type of open-end funds – members of UNIS (in mil. CZK)

Date	31.12.97	31.12.98	31.12.99	31.12.00	31.12.01	31.12.02	30.6.03
Equity Funds	165	209	277	1 605	2 129	1 342	1 434
Bond Funds	986	3 134	6 125	3 343	6 566	18 327	26 419
Money Market Funds	1 937	6 737	23 497	22 388	25 857	49 476	57 786
Balanced Funds	8 366	6 706	22 843	47 549	28 698	30 133	28 138
Funds of Funds	0	0	307	1 219	935	618	605
Total	11 454	16 797	53 049	76 529	64 184	99 897	114 380

Source: Author´s calculations.

4.1 Review

The situation at the collective investment market has considerably improved; investors are beginning to trust the funds more. After a staggering 2001, the volume of assets in the funds is growing. What can be a slight problem in the future is that investors could tend to invest in a far too conservative manner and in long-term periods as they can be disappointed by the expected yield. Czech trustees' funds are obliged to pay 15 % gains tax, which puts foreign funds in a more advantageous position (to date Czech crown funds were helped by a strong CZK). In future, a creation of derivatives or real estate funds can be expected – it is crucial that the new Collective Investment Act covers this field so as to regain the motivation of investors (mainly small ones) and not put them in jeopardy. For the capital market, its motivational function is very important as investors quite make up the market and without their trust the capital market cannot function well.

5. Conclusion

The Czech capital market has been active for over a decade. The objective of this paper was to review the current situation of this market in three selected areas. In the first part, Market Organizers, the paper described the activities of the Prague Stock Exchange and the RM-System, and it addressed problems which both of the organizers will have to deal with in near future.

In the next part, Capital Market as a Source of Financing, the paper pointed out the fact that the source of financing function is fulfilled at the Czech capital market only partially and that primary shares issues do not exist at this market at all.

The last part, Collective Investment, dealt with small investors' investments into investment companies and funds. In this area, the situation has gradually stabilized and the volume of assets in open-end funds is increasing overall.

The paper dealt with the contemporary situation of the Czech capital market and it is divided into three parts. The first part described the position of the Prague Stock Exchange and the RM-System. In the second part the authors evaluated the possibility of deficit subjects to finance themselves in this market. The third part dealt with collective investment.

Abstract

Český kapitálový trh má za sebou první desetiletí své existence. Cílem příspěvku bylo zhodnotit současnou situaci na tomto trhu ve třech vybraných oblastech. V první části Organizátoři trhu příspěvek popisuje činnost Burzy cenných papírů Praha a RM-Systému a pojmenovává problémy, které budou muset oba organizátoři v blízké budoucnosti vyřešit.

V části Kapitálový trh jako zdroj financování příspěvek poukazuje na skutečnost, že funkce zdroje financování je na českém kapitálovém trhu plněna pouze částečně a že primární emise akcií na tomto trhu vůbec neexistují.
Závěrečná část příspěvku Kolektivní investování se zabývá investováním drobných investorů do investičních společností a investičních fondů. Zde se situace postupně stabilizovala a objem majetku v otevřených podílových celkově roste.

References

http://www.pse.cz/

http://www.uniscr.cz/

http://www.sec.cz/

MONEY MARKET IN THE CZECH REPUBLIC

Monika Bialonczyková[1]

Key words

money market, CNB

1. Introduction

Interest in financial markets and, in particular, in the money market is essential, because they perform a very important role in the implementation of monetary policy decisions in the economy.

The aim of this paper[2] is to describe the structure of one feature of the Czech financial market – the Czech money market.

2. The Structure of The Money Market

The structure of the money market is heavily influenced by an institutional environment that covers four aspects: i) the central banks' monetary policy decision-making bodies and their policy strategy, ii) their operational procedures and instruments, iii) the private market trading structures and procedures, and iv) the payment and settlement infrastructure.

[1] bialonczykova@opf.slu.cz

[2] The paper is published with the support of the Czech Grant Agency (grant GAČR No. 402/02/1408 „Comparison of the Financial Markets Development in the Czech Republic and in the European Union").

2.1 The Institutional Environment of the Czech Republic and Monetary Policy Decisions

The monetary policy in the Czech Republic is, today, still conducted by the Czech National Bank (CNB). Only after joining EMU will the monetary policy in the Czech Republic be conducted by the European System of Central Banks (ESCB), in particular, by the European Central Bank (ECB).

The primary goal of the CNB, as well as that of the Eurosystem, is to maintain price stability. This CNB monetary policy objective is set forth in Article 98 of the constitution of the Czech Republic and in Article 2 of Act No. 6/1993 Coll., of the Czech National Bank.

The CNB Bank Board has 7 members and its meetings are held every week usually on Thursdays. In its last meeting of the month (when the CNB Bank Board deals with monetary problems), the Bank Board publishes the minutes of the meeting and holds a press conference. Interest rate decisions are the main factors which are taken into account by the CNB Bank Board.

Table 1 - CNB interest rate changes between February 2001 and August 2003

	2W repo Rate (%)	Discount rate (%)	Lombard rate (%)
23 Feb 2001	5,00	4,0	6,00
27 Jul 2001	5,25	4,25	6,25
30 Nov 2001	4,75	3,75	5,75
22 Jan 2002	4,50	3,50	5,50
1 Feb 2002	4,25	3,25	5,25
26 Apr 2002	3,75	2,75	4,75
26 Jul 2002	3,00	2,00	4,00
1 Nov 2002	2,75	1,75	3,75
31 Jan 2003	2,50	1,50	3,50
26 Jun 2003	2,25	1,25	3,25
1 Aug 2003	2,00	1,00	3,00

Source: CNB.

2.2 Monetary Policy Operations

The operational framework provides the key link between the CNB´s monetary policy strategy and the money market.

The operational framework of the Czech Republic is based on three main instruments, which are used by the CNB to implement its monetary policy: i) open market operations, ii) automatic facilities, and iii) minimum reserves. These instruments used by the CNB are fully harmonised with those of the ECB.

Open market operations are the general instruments used to manage the liquidity situation and to steer interest rates in the economy. The main monetary policy instrument is in the form of repo tenders, when the CNB accepts surplus of liquidity in the market and in return transfers eligible securities as collateral. It differs from the ECB, which uses this instrument for providing liquidity.

The basic duration of these operations is 14 days. Repo rate means the maximum limit rate at which banks´ bid can be satisfied in the reverse tender. The supplementary monetary instrument is the three-month repo tender. Other instruments and fine-tuning operations are executed on an ad hoc basis, with the aims of managing the liquidity situation in the market, steering interest rates and smoothing the effect on interest rates of unexpected liquidity fluctuations in the market, although these are rarely used.

The aim of the automatic facilities is to provide or absorb liquidity with an overnight maturity. These instruments may be used in situations of unforeseen liquidity shock. Therefore, they provide a type of insurance mechanism for banks, but at penalty interest rates. The interest rates on these facilities form a corridor for movements of overnight market interest rates.

There are two types of these facilities: i) the deposit facility, which can be used by counterparties to make overnight deposits and, ii) the marginal lending facility allowing to obtain overnight liquidity from the CNB in the form of repo operations.

Minimum reserves are the third component of the operational framework of the Czech Republic.

Every bank, building society and foreign bank branch with a banking licence in the Czech Republic has to hold minimum reserves – prespecified volume of liquidity (reserve ratio is 2 %).

Table 2 - The average volume of excess liquidity absorbed in monetary market operations

2002	CZK 422 billion
2001	CZK 292 billion

Source: *CNB.*

2.3 The Private Market Trading Environment

We can say that the money market is delimited, as the market for short-term funds, has a maturity up to one year. The segments of the money market are the following: i) the unsecured deposit market, where credit institutions exchange short-term liquidity without the guarantee of collateral, ii) the repo market, in which market participants exchange short-term liquidity against collateral, iii) the swap market, in which fixed interest rate payments are exchanged for floating interest rate payments, iv) the futures markets for short-term instruments, and v) the markets for short-term securities, including Treasury bills, commercial paper, certificates of deposit and other assets.

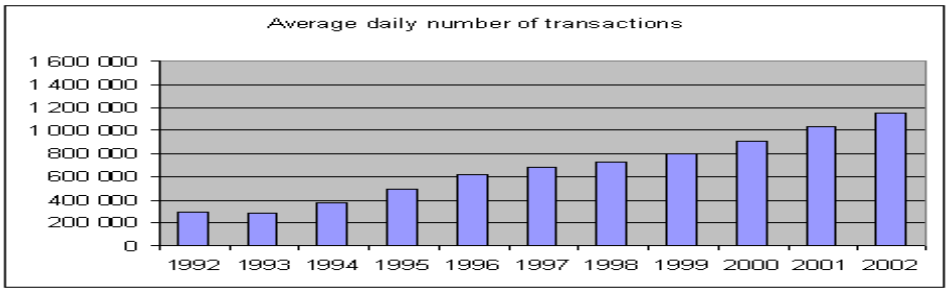
2.4 Payment and Settlement Infrastructure

Efficient and safe large-value payment and securities settlement systems is necessary for monetary and financial integration. The harmonisation of Czech law with EU regulations in the payment systems area was very important in the year 2002, when the CNB completed work on bills to implement into the Czech legislation, that is, the EC directives on cross-border transfers, on electronic money institutions and on settlement finality in the payment and securitities settlement system.

2.4.1 CERTIS – the Interbank Payment System

CERTIS (the Czech Express Real Time Interbank Gross Settlement System) is the CNB´s interbank payment system, which processes all domestic interbank transfers in Czech koruna, checking in real time whether the banks have sufficient coverage for them. At the end of 2002, there war 39 direct participants (i.e. the banks and foreign bank branches, which opeate in the Czech Republic) and the indirect participants (e.g. MUZO, Univyc and the RM-System).

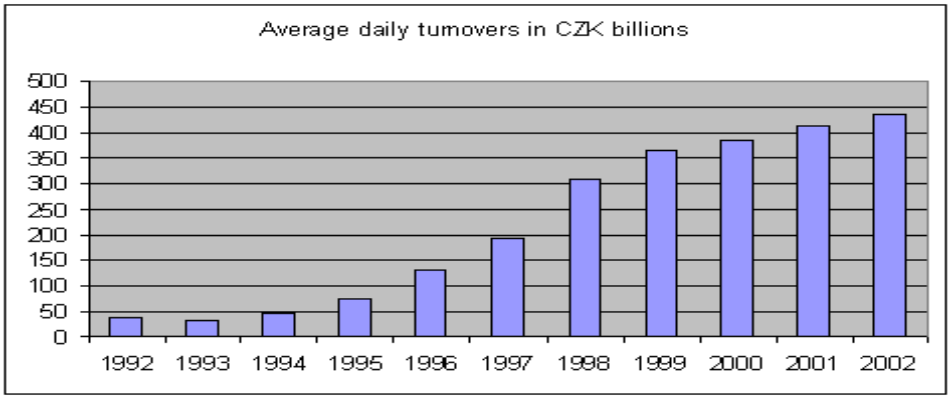
Figure 1 - Average daily number of transactions



Source: CNB.

During the year 2002, the CERTIS system processed a total of 289.5 million transactions, totalling more than CZK 109 trillion.

Figure 2 - Average daily turnovers



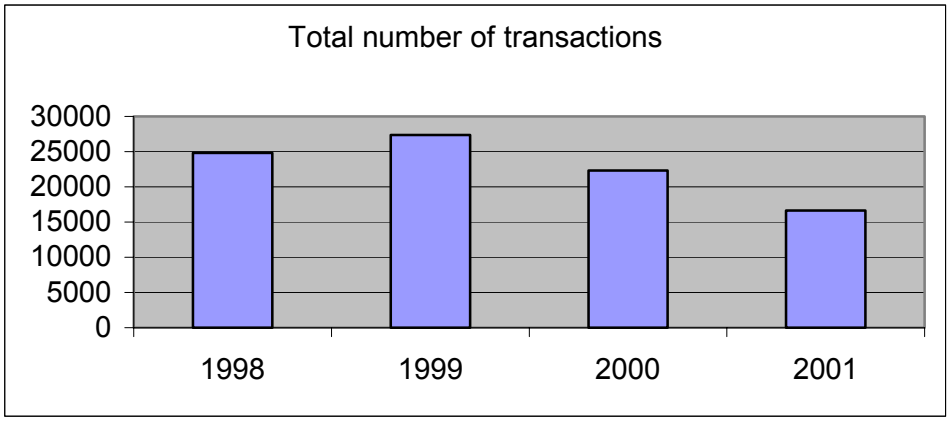
Source: CNB.

2.4.2 SKD (Short-Term Bond System) – Registration and Settlement of Short-Term Bond Transactions

The SKD is the system used for issuing and registering all bonds in book-entry form with maturities up to one year, and for settling trades in these securities.

SKD facillitates the issuance and direct sale of bonds, the settlement of trade with bonds, and the redemption of bonds at maturity. Furthermore, the SKD supports the smooth operation of the CERTIS system, as the securities held by banks serve as collateral for the intraday credit extended by the CNB within CERTIS.

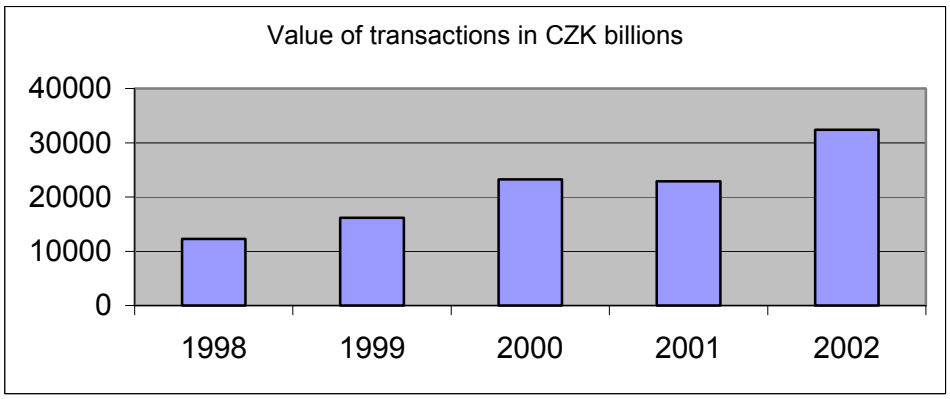
Figure 3 - Total number of transactions within the framework SKD



Source: CNB.

The number of transactions during the last years has been decreasing (Figure 3), while the value has been increasing. That means that the average value of transactions has been increasing.

Figure 4 – Value of transactions within the framework SKD



Source: CNB.

2.4.3 The ABO System – the CNB´s Accounting and Payment System

Maintaining and administering the accounts of state organisational units and organisations connected to the state budget, as well as keeping books on the central bank´s own funds, is pursued through the ABO (Automated Banking Operations) system.

More than 100,000 items a day on average are processed through this system. Average daily turnover exceeds CZK 1 trillion.

3. Conclusion

The interest in money markets and, in particular, in the Czech money market is quite reasonable. All segments of financial markets has gone through a lot of important changes. For the Czech Republic, it is much more interesting, especially, because of its oncoming joining the EU and consequently, the EMU. An extensive esearch of actual facts and features of the money market, not only in the Czech Republic, but primarily all of Europe, is necessary for the future development of financial markets.

Abstract

Vývoj a struktura českého peněžního trhu, který je nejlikvidnějším trhem v České republice, je velice důležitý, protože hraje velmi důležitou roli při provádění měnové politiky. Cílem příspěvku je popsat strukturu českého peněžního trhu, zvláště pak institucionální prostředí.

References

[1] BIALONCZYKOVA, M. Analysis of Money Market Interest Rates in the Czech Republic and the EU. *In International Symposium Transition Countries Joining European Union.* Karviná: OPF SU, 2002, pp. 141 – 146. ISBN 80-7248-172-X.

[2] BINDA, J. Models of the Distribution of Products and Banking Facilities. *Národohospodářský obzor.* 2003, No. 1, pp. 3 – 10.

[3] Czech National Bank. *Annual Report.* Prague: CNB, 2001.

[4] Czech National Bank. *Annual Report.* Prague: CNB, 2002.

[5] European Central Bank. *Euro money market study.* Frankfurt: ECB, 2002.

[6] European Central Bank. *The euro money market.*Frankfurt: ECB, 2001.

[7] MEJSTŘÍK, M. Makroekonomické a finanční aspekty rozvoje eurozóny. *Finance a úvěr*. 2000, No. 6, pp. 310 – 325. ISSN 0015-1920.

[8] SANTILLAN, J. - BAYLE, M. - THYGESEN. The impact of the euro on money and bond markets. *ECB Occasional Paper.* No. 1. Frankfurt: ECB, 2000.

[9] http://www.cnb.cz.

[10] http://www.ecb.int.

THE ASYMMETRIC IMPACT OF NEWS ON STOCK MARKET VOLATILITY[1]

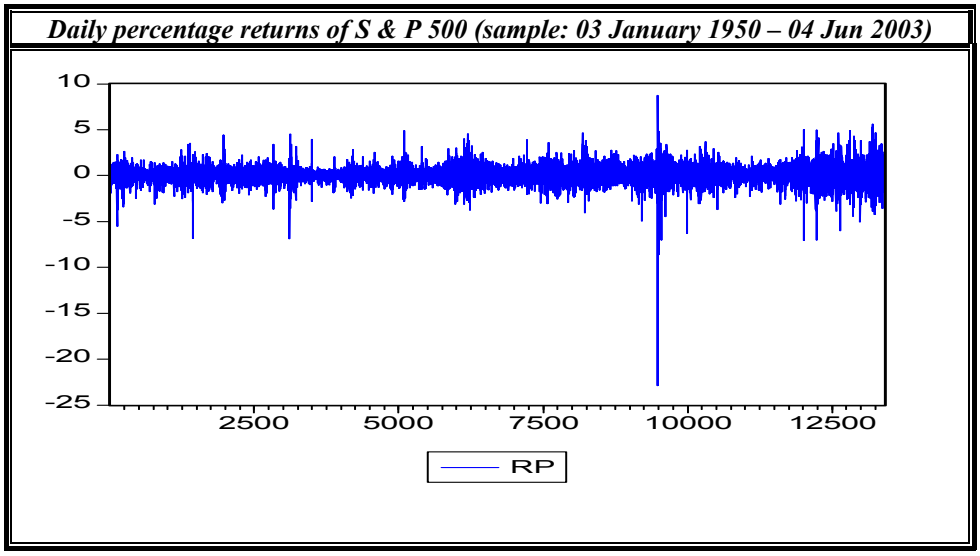
Stanislav Matuszek[2]

Motto 1:

....“At closer inspection, one notes that large price changes are not isolated between periods of slow change; they rather tend to be the result of several fluctuations, some of which “overshoot“ the final change. In other words, large changes tend to be followed by large changes and small changes tend to be followed by small changes ....“ Figure 1)

(Benoit Mandelbrot,1963)

Figure 1 - Daily percentage returns of S & P 500 (03 January 1950 – 04 Jun 2003)



Source: www.yahoo.com (finance).

[1] This paper is published with the support of the Czech Grant Agency (grant GAČR No. 402/02/1408 “Comparison of the Financial Markets Development in the Czech Republic and in the European Union”).

[2] matuszek@opf.slu.cz

Motto 2:

...."Negative innovations to stock returns tend to increase volatility more than positive innovations of the same magnitude ...."

(Fisher Black, 1976)

Key words

non-linearity, changing variance models, ARCH and GARCH models, asymmetric impact of news on volatility, EGARCH and TARCH models

1. Introduction

Many aspects of financial markets suggest that investors´ attitudes towards risk and expected return are non-linear. Moreover, we can indicate that financial markets are complex dynamical systems and the important feature of these systems is the "generating" of non-linear processes. The terms of many financial contracts such as options and other derivative instruments are non-linear. The strategic interactions among market participants, the process by which information is incorporated into asset prices, and the dynamics of fluctuations are all inherently non-linear etc. Therefore, a natural frontier for financial econometrics is the modeling of non-linear phenomena.

Exciting advances in the dynamical systems theory, non-linear time series analysis, stochastic volatility models, non-parametric statistics, and artificial neural networks have fueled the recent interest in non-linearities in financial data and have motivated a number of techniques for estimating non-linear relationships.

This paper deals with non-linear structure in the financial time series and a reflection of this phenomenon in selected models of changing volatility.

The article is organized as follows: Section 1 briefly makes clear a problem of non-linear structure in the financial time series; Section 2 presents basic parametric models of changing variance – the ARCH and the GARCH models; Section 3 introduces and explains two asymmetric volatility models – the EGARCH and the TARCH; and Section 4 is the empirical part of this paper.

The main purpose of this paper is to test the hypothesis that news (innovations) has different impacts on volatility.

This hypothesis is tested on daily returns of indexes for six national stock markets.

2. Non-Linear Structure in the Financial Time Series

In the non-linear financial time series analysis, the underlying shocks (innovations) are typically assumed to be IID[3], but we seek a possibly non-linear function relating the series to the history of the innovations.

A general representation is:

$$y_t = f(\varepsilon_t, \varepsilon_{t-1}, \varepsilon_{t-2}, ...) \tag{1}$$

The shocks (ε_i) are assumed to have mean zero and unit variance, and f (…) is some unknown function. Of course, the generality of this representation makes it very hard to work in practice. More restricted class can be written as:

$$y_t = g(\varepsilon_{t-1}, \varepsilon_{t-2}, \varepsilon_{t-3}...) + \varepsilon_t h(\varepsilon_{t-1}, \varepsilon_{t-2}, \varepsilon_{t-3}...) \tag{2}$$

The function g(…) represents the mean of y_t conditional on past information, since:

$$E_{t-1}[y_t] = g(\varepsilon_{t-1}, \varepsilon_{t-2}, \varepsilon_{t-3}....) \tag{3}$$

The innovation in y_t is proportional to the shocks (ε_t), where coefficient of proportionality is the function h (…). The square of this function is the variance of y_t conditional on past information, since:

$$E_{t-1}\left\{[y_t - E_{t-1}(y_t)]^2\right\} = h(\varepsilon_{t-1}, \varepsilon_{t-2}, \varepsilon_{t-3},...)^2 \tag{4}$$

Models with non-linear g (…) are said to be non-linear in mean, whereas models with non-linear h (…)[2] are said to be non-linear in variance.

Equation 2 leads to a natural division between models of the conditional mean, g (…), and models of the conditional variance, h (…).[2] Most models reflect only on one form of non-linearity or the other. In Section 2 and 3 models of changing variance (models of the conditional variance) are presented. The remainder of this section concentrates on a survey of several non-linear models of the conditional mean and tests of non-linearity.

The interesting parametric models are:[4]

- TAR (Threshold Autoregressive – piecewise-linear model);
- STAR (Smooth Transition Autoregressive);
- SETAR (Self Exciting Threshold Autoregressive);
- MSW (Markov Switching);
- EXPAR (Amplitude Dependent Exponential Autoregression);

[3] IID – Independent and Identical Distribution

[4] See Priestley (1988), Teräsvirta, Tjøstheim, and Granger (1994), Tong (1990), and Arlt (2003).

- SDM (State Dependent Models);
- Polynomial models;
- Deterministic chaotic models.

The basic statistical tests of non-linearity are:

- tests based on higher moments (Hsieh, 1989);
- the Correlation Integral and the Correlation Dimension (Grassberger and Proccatia, 1983);
- the BDS test (Brock, Dechert, and Scheinkman, 1987).

3. Models of Changing Volatilities

In order to concentrate on volatility, we assume that the variance of the error terms (shocks, innovations) at time t depends upon the squared error terms from previous periods. The basic paper in this area is by Engle (1982), in which he proposes the concept of ***Autoregressive Conditional Heteroskedasticity (ARCH)***. The simple form is:

$$\sigma^2 \equiv E\left\{\varepsilon_t^2 \left[\mathrm{I}_{t-1}\right]\right\} = \varpi + \alpha\varepsilon_{t-1}^2 \tag{5}$$

where: I_{t-1} denotes the information set, including ε_{t-1} and its entire history

This specification is called ARCH (1) process. To ensure that $\sigma^2_t \geq 0$ we need to impose that $\omega \geq 0$ and $\alpha \geq 0$. The ARCH (1) model says that when a big shock happens in period t-1 it is more likely that ε_t has a large (absolute) value as well. That is, when ε^2_{t-1} is large, the variance of the next innovation ε_t is also large.

The specification in (5) does not imply that the process for ε_t is non-stationary. It just says that the squared values ε^2_t and ε^2_{t-1} are correlated.

The unconditional variance of ε_t is given by:

$$\sigma^2 = E\left\{\varepsilon_t^2\right\} = \varpi + \alpha E\left\{\varepsilon_{t-1}^2\right\} \tag{6}$$

and has a stationary solution:

$$\sigma^2 = \frac{\varpi}{1-\alpha} \tag{7}$$

provided that $0 \leq \alpha \leq 1$

Therefore, we can conclude that the unconditional variance does not depend upon t.

The ARCH (1) model is easily extended to an ARCH (p) process, which we can write as

$$\sigma_t^2 = \varpi + \alpha_1 \varepsilon_{t-1}^2 + \alpha_2 \varepsilon_{t-2}^2 + ... + \alpha_p \varepsilon_{t-p}^2 \tag{8}$$

or

$$\sigma_t^2 = \varpi + \sum_{j=1}^{p} \alpha_j \varepsilon_{t-j}^2 = \varpi + \alpha(L)\varepsilon_{t-1}^2 \tag{9}$$

where: α (L) is a lag polynomial of order p-1

To ensure that the conditional variance is non-negative, ω and the coefficients α (L) must be non-negative. To ensure that the process is stationary, it is also required that α(1) < 1. In an ARCH (p) model, old shocks of more than p periods ago have no effect on current volatility.

ARCH models have been generalized in many different ways. A useful variant, proposed by Bollerslev (1986), is the ***Generalized ARCH*** or ***GARCH*** model.[5]

In its general form, a GARCH (p, q) model can be written as:

$$\sigma_t^2 = \varpi + \sum_{j=1}^{p} \alpha_j \varepsilon_{t-j}^2 + \sum_{j=1}^{q} \beta_j \sigma_{t-j}^2 \tag{10}$$

or

$$\sigma_t^2 = \varpi + \alpha(L)\varepsilon_{t-1}^2 + \beta(L)\sigma_{t-1}^2 \tag{11}$$

where: α (L) and β (L) are lag polynomials

In practical analysis of variance a GARCH (1, 1) specification often performs very well. It can be written as:

$$\sigma_t^2 = \varpi + \alpha \varepsilon_{t-1}^2 + \beta \sigma_{t-1}^2 \tag{12}$$

This form of the GARCH model has only three parameters to estimate. Non-negativity of σ^2_t requires that ω, α and β are non-negative. If we define the surprise in squared innovations as:

$$v_t \equiv \varepsilon_t^2 - \sigma_t^2 ,$$

The GARCH (1, 1) process can be rewritten as:

[5] We can see an ARCH model as a special case of GARCH models.

$$\varepsilon_t^2 = \varpi + (\alpha + \beta)\varepsilon_{t-1}^2 + \nu_t - \beta\nu_{t-1} \tag{13}$$

which shows that the squared errors follows ARMA (1, 1) process.
The root of the autoregressive part is α + β, so that stationarity requires that:

$$\alpha + \beta < 1$$

Values (α + β) close to unit imply that the persistence in volatility is high.[6]

Many alternative specifications to the model of conditional volatility are proposed in the literature, corresponding to a variety of different acronyms.[7] The family of generalized autoregressive heteroskedasticity (GARCH) models is defined and very well explained in detail in the paper by Hentschel (1995).

4. Asymmetric Models of Volatility

GARCH models have a few major drawbacks in asset pricing applications:

- a negative correlation was found between current returns and future returns volatility – GARCH models rule this out by assumption;
- GARCH models impose parameter restrictions that are often violated by estimated coefficients and that may unduly restrict the dynamics of the conditional variance process;
- the interpretation whether shocks to conditional variance persist or not is difficult in GARCH models, because the usual norms measuring persistence often do not agree, and so on.

Researchers have fruitfully applied the GARCH methodology in asset pricing models and these models elegantly capture the volatility clustering in asset returns first noted by Mandelbrot (see Motto 1). This feature of GARCH models accounts for both their theoretical appeal and empirical success.

On the other hand, the simple structure of Eq.(10) imposes important limitations on GARCH models. For example, analytics and researchers beginning with Black (see Motto 2) have found evidence that volatility tends to rise in response to "bad news" (excess returns lower than expected) and to fall in response to "good news" (excess returns higher than expected). An important restriction of the GARCH specifications is their symmetry: only the absolute values of the innovations matter, not

[6] The Integrated GARCH or IGARCH process arises when (α + β) = 1 and volatility shocks have a permanent effect.
[7] See Bollerslev, Chou and Kroner – 1992, Bera and Higgins – 1993, Bollerslev, Engle and Nelson – 1994, for review.

their sign. That is, a big negative shock has the same impact on future volatility as a big positive shock of the same magnitude; only the size, not the sign, of lagged residuals determines conditional variance. An interesting extension is towards asymmetric volatility models, in which good news and bad news have a different impact on future volatility, and these asymmetric models might be preferable for asset pricing applications.

An asymmetric model should allow for possibility that an unexpected drop in price ("bad news") has a larger impact on future volatility than an unexpected increase in price ("good news") of similar magnitude. A fruitful approach to capture such asymmetries is provided by Nelson´s (1991) ***EGARCH*** (or ***Exponential GARCH***) and Zakoian´s (1991, 1994) ***TARCH*** (or **Threshold ARCH**).

The EGARCH (1, 1) model specification for the conditional variance is:

$$\log \sigma_t^2 = \varpi + \beta \log \sigma_{t-1}^2 + \gamma \frac{\varepsilon_{t-1}}{\sigma_{t-1}} + \alpha \left| \frac{\varepsilon_{t-1}}{\sigma_{t-1}} \right| \tag{14}$$

Note that the left-hand side is the natural logarithm of the conditional variance. This implies that the leverage effect is exponential, rather than quadratic, and the forecasts of the conditional variance are guaranteed to be non-negative. The presence of leverage effects can be tested by the hypothesis that parameter γ is a statistical significant. The EGARCH model is asymmetric as long a $\gamma \neq 0$. When $\gamma < 0$, then positive shocks ("good news") generate less volatility than negative shocks ("bad news").

It is possible to extend the EGARCH model by including additional lags (p, q):

$$\log \sigma_t^2 = \varpi + \sum_{j=1}^{q} \beta_j \log \sigma_{t-1}^2 + \sum_{j=1}^{p} \left(\alpha_j \left| \frac{\varepsilon_{t-j}}{\sigma_{t-j}} \right| + \gamma_j \frac{\varepsilon_{t-j}}{\sigma_{t-j}} \right) \tag{15}$$

The TARCH model was introduced independently by Zakoian (1991) and Glosten, Jaganathan, and Runkle (1993). The standard specification TARCH (1, 1) model for the conditional variance is given by:

$$\sigma_t^2 = \varpi + \alpha \varepsilon_{t-1}^2 + \beta \sigma_{t-1}^2 + \gamma \varepsilon_{t-1}^2 d_{t-1} \tag{16}$$

where: $d_t = 1$ if $\varepsilon_t < 0$, and 0 otherwise

In this model, good news ($\varepsilon_t > 0$), and bad news ($\varepsilon_t < 0$), have differential effects on the conditional variance. Good news has an impact of α, while bad news has an impact of $(\alpha + \gamma)$. If $\gamma > 0$ we say that the leverage effect exists. If $\gamma \neq 0$ the news impact is asymmetric.

For higher order specification of the TARCH (p, q) model we have to estimate:

$$\sigma_t^2 = \varpi + \sum_{j=1}^{p} \alpha_j \varepsilon_{t-j}^2 + \sum_{j=1}^{q} \beta_j \sigma_{t-j}^2 + \gamma \varepsilon_{t-1}^2 d_{t-1} \qquad (17)$$

5. Data, Tests and Results

Although, the main purpose of this paper is to test statistical significance of volatility asymmetry in the EGARCH and TARCH model, the empirical study focuses on investigating whether the stock market returns are normally distributed.

5.1 Data

The data set consists of daily close prices for the representative stock indexes of six countries, namely the United States (index S & P 500), the United Kingdom (FTSE 100), France (CAC 40), Germany (DAX 30), Italy (MIBTEL) and the Czech Republic (PX 50). Prices (values of the indexes) are expressed in local currencies.[8] Table 1 shows the range of the data and the number of observations.

Table 1 – Stock index observations

country	***stock index***	***range of the data***	***number of observations***
USA	S & P 500	03 Jan. 1950 – 04 Jun 2003	13 415
UK	FTSE 100	02 Apr. 1984 – 02 Jun 2003	4 837
Germany	DAX 30	26 Nov. 1990 – 02 Jun 2003	3 135
France	CAC 40	01 March 1990 – 02 Jun 2003	3 323
Italy	MIBTEL	19 July 1993 – 04 Jun 2003	2 480
Czech Republic	PX 50	01 July 1997 – 02 Jun 2003	1 464

Source: Author's calculations.

Daily returns for each index are calculated as the percent logarithmic difference (first difference) in the daily close values of the stock index, i.e.,

$$rp_t = 100*(\log I_t - \log I_{t-1})$$

[8] The daily prices are obtained from Internet page: www.yahoo.com (finance).

5.2 Descriptive Statistics, Testing for Normality, and Results

Table 2 (Appendix II) shows results of descriptive statistics for the daily returns. The statistics reported are:

- the mean (the average value of the series);
- the median (the middle value of the series);
- the maximum and minimum values;
- measures for skewness[9] (the asymmetry of the distribution of the series around its mean) and kurtosis[10] (the peakedness or flatness of the distribution of the series);
- the Jarque – Bera statistic (see Appendix 1) and
- probability (p – value).

The skewness and kurtosis measures are highly significant, indicating that none of the series is normally distributed at the 5 % level of the significance.[11] This is an empirical regularity encountered in almost all financial time series, especially in high frequencies. What is not clear from these statistics is the extent to which the first and second moment dependencies are asymmetric.

5.3 Testing for Statistical Significance of Asymmetry Parameters

The (G)ARCH models are the first generation of parametric models of conditional heteroskedasticity and they do not capture dynamic asymmetry aspects of volatility. To overcome this limitation, a second generation of GARCH – type models, e.g. EGARCH and TARCH (see Section 3), was introduced.[12] These asymmetric GARCH models allow positive and negative changes to have different impacts on future

[9] The skewness of symmetric distribution, such as the normal distribution, is zero. The positive skewness means that the distribution has a long right tail. The negative skewness implies that the distribution has a long left tail and so large negative returns are more common, than large positive ones.

[10] The kurtosis of the normal distribution is 3. If the kurtosis exceeds 3, the distribution is peaked (leptokurtic) relative to the normal and this indicates the existence of a characteristic fat - tailed behaviour compared with a normal distribution. If the kurtosis is less than 3, the distribution is flat (platykurtic) relative to the normal.

[11] For uniformity, the 5 % level of significance is throughout.

[12] There are a lot of models in similar conception: the AGARCH (Absolute GARCH) proposed by Engle and Ng (1993), QGARCH (Quadratic GARCH) by Sentana (1991), NARCH (Non-linear ARCH) of Higgins and Bera (1992) etc.

volatilities. To catch these empirical features, two type models (mentioned above) are fitted to the data.

To get an estimation of these models we have to provide two distinct specifications:

1) $y_t = x_t'\theta + \varepsilon_t$ (for the conditional mean);

2) kind and order of (G)ARCH model (for the conditional variance).

The mean equation given in (1.) is written as a function of exogenous variables with an error term. It is possible to add a constant or specific model with no regressors in the mean (in a special case x_t is just a constant or zero).

All models are estimated by the method of maximum likelihood, under the assumption that the errors are conditionally normally distributed. If the distribution of the residuals is not normal, the estimates are consistent under quasi-maximum likelihood assumptions.

The results of estimation are presented in Table 2 (for EGARCH model) and Table 3 (for TARCH model). The asymmetric relation between shocks (innovations) in returns and changes in variance (volatility), as represented by parameter γ, is highly significant for stock markets of the USA, the UK, Germany and France (except stock markets of Italy and the Czech Republic). Recall that negative values of γ in the EGARCH models indicate that volatility tends to rise (fall) when returns surprises are negative (positive). This conclusion is confirmed by estimation of TARCH models (here positive values of parameter γ mean asymmetric phenomenon) as well.

Table 2 - Asymmetric model EGARCH (1, 1)

Asymmetric model EGARCH (1, 1)				
Country	**γ**	**std. error**	**z - statistic**	**probability**
USA	-0,063200	0,016119	-3,920697	0,0001
UK	-0,056877	0,014932	-3,808958	0,0001
Germany	-0,054117	0,014825	-3,650362	0,0003
France	-0,064493	0,014042	-4,592806	0,0000
Italy	-0,044039	0,035318	-1,246917	0,2124
Czech Republic	-0,039370	0,031644	-1,244142	0,2134

Source: www.yahoo.com (finance), econometric program EViews 4.1.

Table 3 - *Asymmetric model TARCH (1, 1)*

Asymmetric model TARCH (1, 1)				
country	**γ**	**std. error**	**z - statistic**	**probability**
USA	0,079760	0,018223	4,376940	0,0000
UK	0,072225	0,017662	4,089175	0,0000
Germany	0,083036	0,021554	3,852376	0,0001
France	0,088044	0,019773	4,452817	0,0000
Italy	0,065537	0,050970	1,285808	0,1985
Czech Republic	0,064971	0,043119	1,506783	0,1319

Source: www.yahoo.com (finance), econometric program EViews 4.1.

6. Conclusion

In this paper, some aspects of non-linearity in financial time series as the basis of volatility changing models have been introduced. These models are presented on the theoretical level in Sections 2 and 3. The empirical part of Section 4 focuses on testing for distribution normality of the daily returns time series in stock market indexes representing six countries, namely the USA, the UK, Germany, France, Italy and the Czech Republic. The results of the Jarque – Bera tests of normality confirm the assumption that the hypothesis of normality can be strongly rejected by samples of the data.

The first generation models of conditional heteroskedasticity can very well cover the effect of volatility clusters, but cannot reflect on the asymmetry in the dynamics of stock market returns. The asymmetric impact of news to volatility changing can be solved using EGARCH and TARCH models which are estimated and tested for statistical significance of parameters of asymmetry in Section 4. The results of the tests confirm the statistical significance of parameters of asymmetry in both models for the daily returns in the USA, the UK, Germany, and France but not for Italy and the Czech Republic. The estimated parameters of asymmetry reveal that volatility is an asymmetric function of past innovations in stock markets of the USA, the UK, Germany and France. More specifically, negative innovations increase volatility more than positive innovations. The degree of asymmetry can be evaluated by parameter γ (Tables 3 and 4). The values of parameters γ in the TARCH models is about 0,07 (with a standard error of about 0,02), in the EGARCH models it is about -0,06 (with a standard error of about 0,015) which is significantly above (below) zero at any standard level. This effect is not confirmed for Italy and the Czech Republic.

These conclusions of asymmetric volatility phenomenon are very important in practical specifications of prediction volatility models.

Abstract

Příspěvek je obecně zaměřen na problematiku nelineárních procesů vyskytujících se ve finančních časových řadách. Konkrétním cílem je zjistit statistickou významnost hypotézy o diferencovaném vlivu relevantních informací na volatilitu akciových trhů šesti zemí na agregátní úrovni, tj. na úrovni akciových indexů.
Příspěvek je rozdělen do čtyř částí. První část stručně objasňuje podstatu nelineárních jevů. Druhá část je zaměřena na základní parametrické modely podmíněné heteroskedasticity modely ARCH a GARCH. Ve třetí části jsou představeny dva typy modelů asymetrické volatility. Empirickou část příspěvku tvoří část čtvrtá, ve které najdeme výsledky testů normality časových řad denních výnosů akciových indexů šesti zemí. Tabulky 3 a 4 obsahují výsledky estimací parametrů asymetrie modelů EGARCH a TARCH. Výsledky estimací a testy významnosti prokázaly platnost hypotézy o diferencovaném vlivu inovačních šoků na volatilitu akciových trhů USA, VB, Německa a Francie. Asymetrický efekt neměl statistickou relevanci na akciových trzích Itálie a České republiky.

Appendix I: Testing for normality

Jarque – Bera is a popular test statistic for testing whether the series is normally distributed or not. The test statistic measures the difference of the skewness and kurtosis of the series with those from the normal distribution. The statistic is computed as:

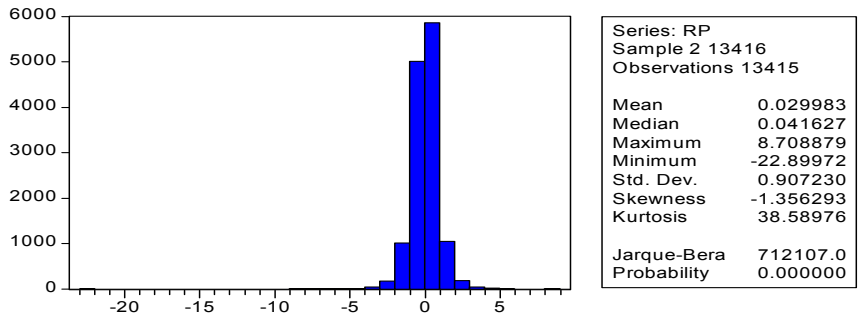
$$JB = N\left[\frac{1}{6}\left(\frac{1}{N}\sum_{i=1}^{N}\frac{\varepsilon_i^3}{\sigma^3}\right)^2 + \frac{1}{24}\left(\frac{1}{N}\sum_{i=1}^{N}\frac{\varepsilon_i^4}{\sigma^4} - 3\right)^2\right]$$

which is a weighted average of the squared sample moments corresponding to skewness and excess kurtosis. Under the null hypothesis, it is asymptoticically distributed as a Chi-squared with two degrees of freedom. The reported Probability (see Table 2) is the probability that a Jarque – Bera statistic exceeds (in absolute value) the observed value under the null hypothesis. A small probability value leads to the rejection of the null hypothesis of the normal distribution (at the 5 % or 1 % significance level). Alternative tests are: Kolmogorov – Smirnov, Liliefors, Cramer – von Mises, Anderson – Darling, Watson empirical distribution tests etc.

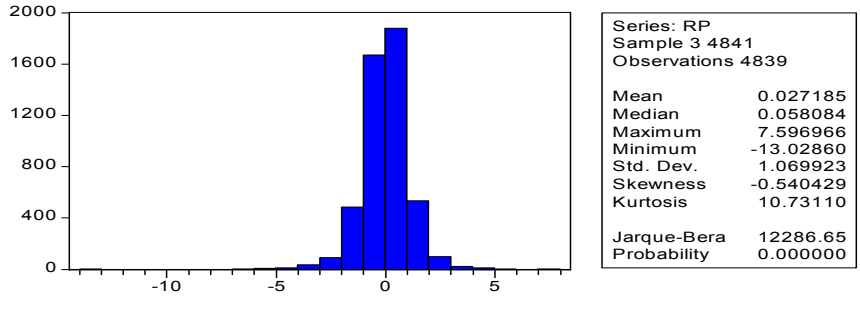
Appendix II

Table 4 - Distribution of daily returns – Part I

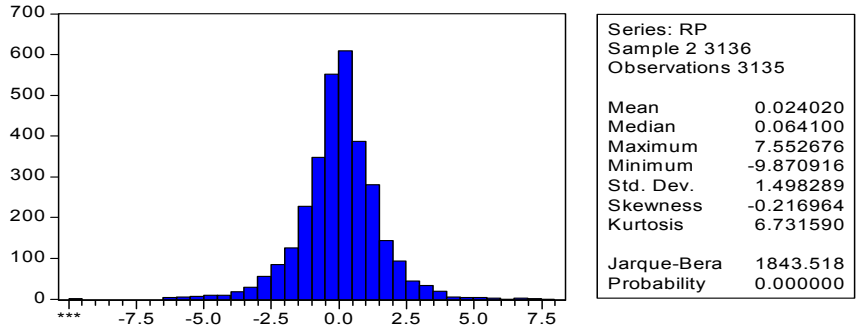
USA: S & P 500



UK: FTSE 100



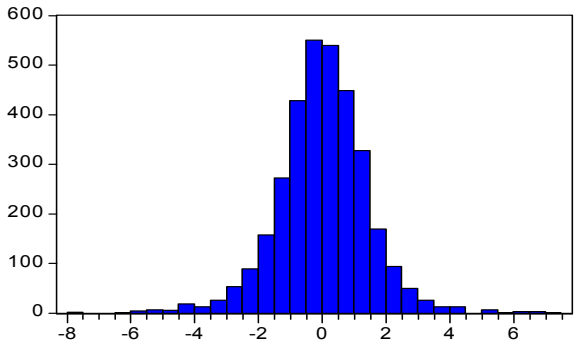
Germany:DAX 30



Source: Author´s calculations.

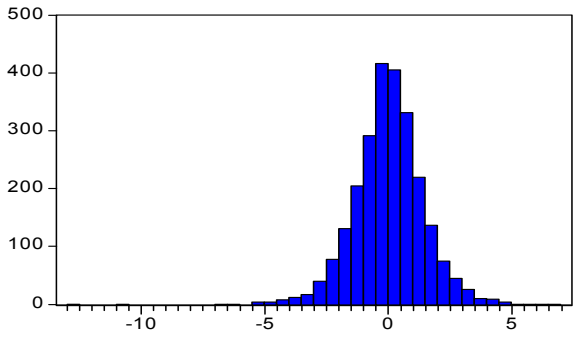
Table 2 - Distribution of daily returns – Part II

France: CAC 40



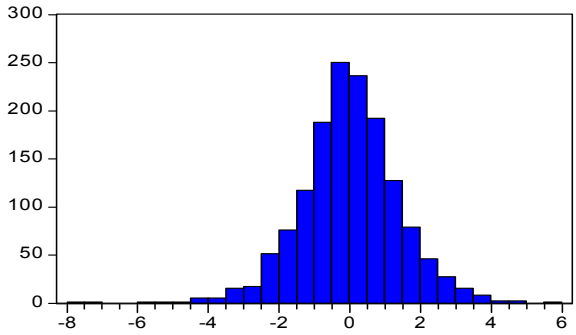
Series: RP	
Sample 2 3324	
Observations 3323	
Mean	0.015323
Median	0.017559
Maximum	7.002286
Minimum	-7.678085
Std. Dev.	1.416298
Skewness	-0.088693
Kurtosis	5.474484
Jarque-Bera	852.1466
Probability	0.000000

Italy: MIBTEL



Series: RP	
Sample 2 2481	
Observations 2480	
Mean	0.024755
Median	0.036688
Maximum	6.831762
Minimum	-12.73741
Std. Dev.	1.443681
Skewness	-0.446246
Kurtosis	7.723786
Jarque-Bera	2388.106
Probability	0.000000

Czech Republic: PX 50



Series: RP	
Sample 3 1466	
Observations 1464	
Mean	0.008734
Median	0.000000
Maximum	5.819986
Minimum	-7.809430
Std. Dev.	1.384988
Skewness	-0.248092
Kurtosis	4.841740
Jarque-Bera	221.9304
Probability	0.000000

Source: Author´s calculations.

References

[1] ARLT, J., ARLTOVÄ, M. *Finanční časové řady*. Praha: Grada, 2003.

[2] BAILLIE, R.T., BOLLERSLEV, T., MIKKELSEN, H.O. Fractionally integrated generalized autoregrassive conditional heteroskedasticity. *Journal of Econometrics*, 74, 1996. pp. 3 – 30.

[3] BLACK, F. Studies of stock price volatility changes. In *Proceedings of the 1976 Meeting of the Business and Economic Statistics Section*, American Statistical Association. pp. 177-181, 1996.

[4] BOLLERSLEV, T. Generalized autoregressive conditional heteroskedasticity. *Journal of Econometrics* 31, 1986. pp. 307 – 328.

[5] BOLLERSLEV, T. A conditionally heteroskedastic time series model of security prices and rates of return data. *Review of Economics and Statistics* 59, 1987. pp. 542 – 547.

[6] BOLLERSLEV, T., CHOU, R.Y., KRONER, K.F. ARCH modeling in Finance: a review of the theory and empirical evidence. *Journal of Econometrics* 52, 1992. pp. 5 – 59.

[7] BOLLERSLEV, T., ENGLE, R.F., NELSON, D.B. ARCH Models. In *Handbook of Econometrics*, Volume IV, Amstrdam: Elsevier Science, 1994. pp. 2961 – 3038.

[8] BOLLERSLEV, T., WOOLDRIDGE, J.M. Quasi-maximum likelihood estimation and inference in dynamic models with time-varying covariances. *Econometric Reviews* 11, 1992. pp. 142 – 172.

[9] BROCK, W., DECHERT, W., SCHEINKMAN, J. A test for independence based on the correlation dimension. *Unpublished paper,* University of Wisconsin at Madison, University of Huston, and University of Chicago, 1987.

[10] CAMPBELL, J.Y., LO, A.W., MACKINLAY, A.C. *The econometrics of financial markets.* Princeton: Princeton University Press, 1997.

[11] DING, Z., GRANGER, C.W.J., ENGLE, R.F. A long memory property of stock market returns and a new model. *Journal of Empirical Finance* 1, 1993. pp. 83 – 106.

[12] DING, Z., GRANGER, C.W.J. Modeling volatility persistence of speculative returns. *Journal of Econometrics* 73, 1996. pp. 185 – 215.

[13] ENGLE, R. F. Autoregressive conditional heteroskedasticity with estimates of the variance of United Kingdom inflation. *Econometrica* 50, 1982. pp. 987 – 1007.

[14] ENGLE, R.F., NG, V.K. Measuring and testing the impact of news on volatility. *Journal of Finance* 48, 1993. p. 1749 – 1778.

[15] DUFFEE, G.R. Stock returns and volatility: A firm level analysis. *Journal of Financial Economics* 37, 1995. pp. 399 – 420.

[16] ENGLE, R.F., Ng, V. Measuring and testing the impact of news on volatility. The *Journal of Finance* 48, 1993. pp. 1749 – 1778.

[17] GALLANT, R.A., ROSSI, P.E., TAUCHEN, G. Stock prices and volume. *Review of Financial Studies* 5, 1992. pp. 199 – 242.

[18] GLOSTEN, L.R., JAGANNATHAN, R., RUNKLE, D.E. On the relation between the expected value and the volatility of the nominal excess return on stocks. *The Journal of Finance 48*, 1993. pp. 1779 – 1801.

[19] GRASSBERGER, P., PROCACCIA, I. Measuring the strangeness of strange attractors. *Physica 9D*, 1983. pp. 189 – 208.

[20] HENTSCHEL, L. All in family: nesting symmetric and asymmetric GARCH models. *Journal of Financial Economics* 39, 1995. pp. 71 – 104.

[21] HIGGINS, M.L., BERA, A.K. A class of nonlinear ARCH models. *International Economic Reviews* 33, 1992. pp. 137 – 158.

[22] HSIEH, D. Testing for nonlinear dependence in daily foreign exchange rates. *Journal of Business* 62, 1989. pp. 339 – 368.

[23] KUOTMOS, G., BOOTH, G.G. Asymmetric volatility transmission in international stock markets. *Journal of international Money and Financ*e. 14, 1995. pp. 747 – 762.

[24] LEBARON, B. Some relations between volatility and serial correlations in stock market returns. The Journal of Business *65, 1992. pp. 199 – 219.*

[25] MANDELBROT, B. The variation of certain speculative price. Journal of Business 36, 1963. pp. 394 – 419.

[26] NELSON, D.B. Conditional heteroskedasticity in asset returns: A new approach. *Econometrica 5*9, 1991. pp. 347 – 370.

[27] NELSON, D.B. ARCH models as diffusion approximations. *Journal of Econometrics* 45, 1990a. pp. 7 – 38.

[28] NELSON, D.B. *Stationarity* and persistence in the GARCH (1,1) model. *Econometric Theory 6*, 1990b. pp. 318 – 334.

[29] PAGAN, A.R., SCHWERT, G.W. Alternative models for conditional stock volatility. *Journal of Econometrics* 45, 1990. pp. 267 – 290.

[30] PRIESTLEY, M. *Non-linear and non-stationary time series analysis.* San Diego: Academic Press, 1988.

[31] SCHWERT, G.W. *Why does stock market volatility change over time? Journal of Finance* 44, 1989. pp. 1115 – 1153.

[32] SENTANA, E. *Quadratic* ARCH models: A potential reinterpretation of ARCH models as second – order Taylor approximations. *Unpublished paper* (London School of Economics and Political Science, London, 1991.

[33] SENTANA, E. Quadratic ARCH models. *Review of Economic Studies* 3, 1995. pp. 639 – 661.

[34] TERASVIRTA, T., TJOSTHEIM, D., GRANGER, C.W.J. Aspects of modelling non-linear time series. *Handbook of Econometrics*, Vol. IV, Amsterdam: Elsevier Science, 1994.

[35] TONG, H. *Non-linear time series: A dynamic system approach*. Oxford: Oxford University Press, 1990.

[36] ZAKOIAN, J.M. Threshold heteroskedastic models. *Manuscript - unpublished paper*, CREST, INSEE, Paris, 1991.

[37] ZAKOIAN, J.M. Threshold heteroskedastic models. *Journal of Economic Dynamics and Control* 18, 1994. pp. 931 – 995.

COMPARISON OF THE DEVELOPMENT OF THE CAPITAL MARKETS OF THE VISZEGRAD FOUR[1]

František Čámský[2]

Key words

development of the capital markets, Viszegrad Four, comparison, stock exchange indexes, efficiency

1. Introduction

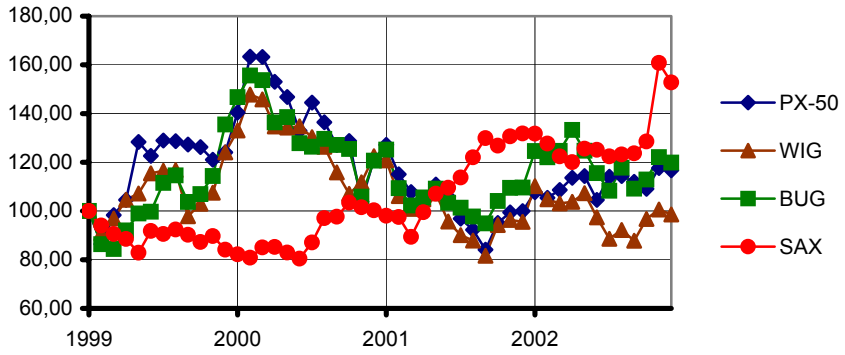
The development of the capital markets in the countries of the Viszegrad Four was independent on one another. After some time of their functioning, it is possible to carry out a comparison of their development and performance. The first part of the paper is devoted to the brief discussion of the origin of these aforementioned capital markets. The further text is aimed at the comparison of these markets together with the explanation of those periods, during which the trends of their indexes sharply rose or/and declined for both microeconomic and macroeconomic reasons in each country. By applying these trends of the indexes, it is likely to estimate efficiency and successfulness of the transformation processes of the national economies from the central planning systems to the market economy in the particular period.

2. Comparison of the Development of the Stock Exchange Indexes

With the intention of comparing adequately the development of the individual stock exchange indexes, we have converted the absolute index values, which had been depicted in the above given graphs, into the relative expression. As a basis, we have selected the first value of the graph of all indexes – the value towards the beginning of 31st January 1999. Towards that day, the relative value of all four indexes was set at 100%. The other values of the time series are recalculated with respect to it and they reflect the subsequent development at the compared stock exchanges.

[1] The paper is published with the support of the Czech Grant Agency (grant GAČR No. 402/02/1408 "Comparison of the Financial Markets Development in the Czech Republic and in the European Union").
[2] RNDr. František Čámský, MU, ESF, Brno lipová 41a, E-mail: camsky@econ.muni.cz

Figure 1 - Comparison of the development of the PX-50, WIG, BUX and SAX indexes in the relative expression in the years 1999-2002

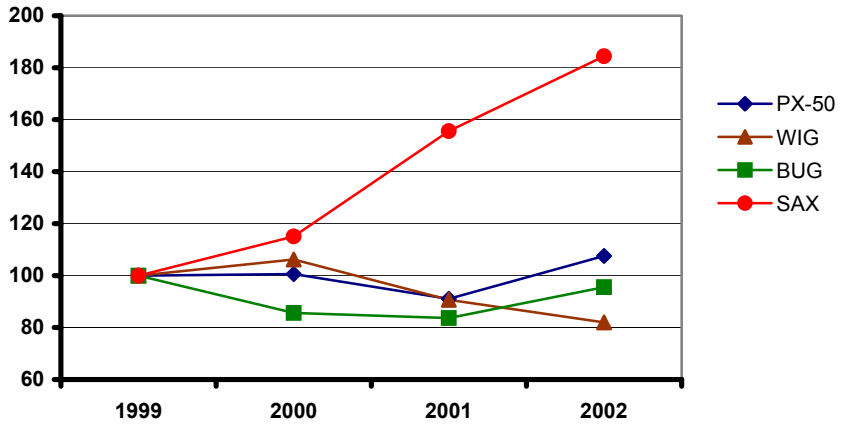


Source: Statistical year-book of the BCPP 1999-2002; WSE Fact Book 2000-2002; BSE Annual Report 1999-2002; Year-book of the BCPB 1999-2002.

As it is apparent from the graphs, the development of indexes at the Prague and Warsaw stock exchanges manifests itself by the reciprocal dependence, whereas the stock index of the Bratislava stock exchange has its own development rate. In fact, the Bratislava stock exchange had shown the highest efficiency over the monitored period of four years. During the first two years it stagnated, however, at the beginning of the year 2001 it started the growing trend, which lasted till the end of the last year, when it reached the level of 160% of the initial year. The other three stock exchanges did well during the year 1999 and at the beginning of the year 2000, when the relative index values climbed to 150-160% of the starting value. Thereafter, the trend of the intense growth broke into a gradual decline, which persisted till the third quarter of the year 2001. Afterwards, the values of the stock exchange indexes more or less stagnated, though the indexes of the Prague and Budapest stock exchanges reached 120% of the starting value over the observed period, the efficiency of the Warsaw did not change at all over the monitored period and towards the end of the year 2002 it reached approximately the same efficiency as at beginning of the year 1999.

The following graph depicts the values of the compared stock exchange indexes adjusted for the fluctuation effects of the currency rates of the national currencies. For a better insight of the trend, we had applied the annual index values, published towards 31st December of the given year. We converted the index values towards that day according to the historical exchange rate into the Euro currency, and then for a better comparison, recalculated into the relative values.

Figure 2 - Comparison of the development of the PX-50, WIG, BUX and SAX indexes calculated into the EURO currency in the relative expression in the years 1999 – 2002



Source: Statistical year-book of BCPP 1999-2002; WSE Fact Book 2000-2003; BSE Annual Report 1999-2002; Year-book of the BCPB 1999-2002.

Since the graph portrays the values announced towards 31.12. over the four observed years, it cannot illustrate the growing trend of indexes of the first year from the previous graph. On the contrary, one can notice that all four national currencies of the Viszegrad Four strengthened in the observed period and therefore the decline of the Prague, Warsaw and Budapest stock exchanges is not dramatic in the years 2000-2002, as the previous graph presents. The Prague stock exchange finished even over the level of the year 1999, the Warsaw and Budapest stock exchanges slightly below that level. In the case of the Bratislava stock exchange, we can observe the continuous growing trend as it is obvious in the graph with the national currencies.

The reciprocal dependence of the development of the stock exchange markets can be considered by the correlation coefficients of the daily changes of the individual compared stock exchange indexes. The following table portrays these coefficients in the four and half a year period from the third quarter of 1995 to the end of the year 1999 and in the subsequent three years of the monitored period.

Table 1 - Correlation coefficients among daily changes of the stock indexes of the PX-50, WIG, BUX a SAX in the period of the third quarter of 1995 – 2002

	30. 6. 1995 – 30. 12. 1999				30. 12. 1999 – 29. 12. 2000			
	PX-50	WIG	BUX	SAX	PX-50	WIG	BUX	SAX
PX-50	1,00				1,00			
WIG	0,30	1,00			0,37	1,00		
BUX	0,33	0,47	1,00		0,50	0,39	1,00	
SAX	0,13	0,02	0,04	1,00	0,16	0,05	0,05	1,00
	29. 12. 2000 – 28. 12. 2001				29. 12. 2001 – 30. 12. 2002			
	PX-50	WIG	BUX	SAX	PX-50	WIG	BUX	SAX
PX-50	1,00				1,00			
WIG	0,38	1,00			0,52	1,00		
BUX	0,54	0,45	1,00		0,41	0,51	1,00	
SAX	0,20	0,01	0,19	1,00	0,00	-0,09	-0,80	1,00

Source: Statistical year-book of the BCPP 1999-2002; WSE Fact Book 2000-2003; BSE Annual Report 1999-2002; Year-book of the BCPB 1999-2002.

It is apparent that there is a considerable reciprocal dependence in the development of the values of the official stock indexes of the Prague, Warsaw and the Budapest stock exchanges. The values of the correlation coefficients of these three indexes ranged in the observed period from the values of 0.30 up to 0.54, and the positive correlation of these indexes is stronger and stronger from year to year. The fact proves true, as the previous graphs give evidence of the fact that the dependence of the SAX stock index of the Bratislava stock exchange on the other compared indexes is very loose and the correlation against the indexes of the WIG and BUX is even negative over the last observed period. The SAX index showed the contradictory development trend in the year 2002 than the indexes of the Warsaw and particularly Budapest stock exchanges, where one could refer to a strong negative correlation.

2. Basis Comparison of the Stock Indexes

For the purpose of the best possible information capability of the stock indexes along with the development at the given stock market, it is necessary for the individual basis issues to be adequately represented in the index. That is the shares of the individual issues in the index basis should correspond to the shares of these issues in the total trade volumes. In this way, the development of demand and supply for the issues can be aggregated for the development of the entire market.

So far, we have dealt with the development of the individual stock exchanges according to the official stock indexes. Now, let us have a look at the composition basis of these indexes.

Table 2 - Index basis of the PX-50 towards 31st March 2003

Pořadí	Název emitenta	Váha emise (%)
1.	**Český Telekom**	**20,79**
2.	**Erste Bank**	**20,23**
3.	**ČEZ**	**19,13**
4.	**Komerční banka**	**18,60**
5.	**Philip Morris ČR**	**7,72**
6.	**Česká pojišťovna**	**3,10**
7.	**Unipetrol**	**2,68**
8.	**České radiokomunikace**	**2,02**
9.	**Živnostenská banka**	**1,90**
10.	**Severočeské doly**	**1,23**
11.	**Sokolovská uhelná**	**0,71**
12.	**Metrostav**	**0,60**
13.	**PVT**	**0,51**
14.	**Nová huť**	**0,33**
15.	**Aliachem**	**0,13**
16.	**ŽĎAS**	**0,12**
17.	**NKT Cables**	**0,09**
18.	**Slezan Frýdek-Místek**	**0,09**

Source: http:// www.pse.cz/.

The PX-50 stock index of the Prague stock exchange has 18 basis issues at present. Český Telekom, Erste Bank, ČEZ and Komerční banka turn the scales as to this index (each has over 10 % and in total 78,75 %). We are talking here about companies providing services (telecommunication and energy companies and banks).

Table 3 - Index basis of the WIG towards 31st March 2003

Pořadí	Název emitenta	Váha emise (%)
1.	TP SA	10,40
2.	PKNORLEN	10,30
3.	Pekao	9,81
4.	BPHPBK	7,34
5.	KGHM	6,52
6.	Prokom	4,31
7.	Swiecie	3,39
8.	BZWBK	3,19
9.	Agora	3,10
10.	Stomil	2,99
11.	Millennium	2,58
12.	INGBSK	2,40
13.	Debica	2,24
14.	Orbis	2,04
15.	Netia2	2,04
16.	Zywiec	1,90
17.	BRE	1,83
18.	Budimex	1,77
19.	Kety	1,57
20.	Handlowy	1,53
21.	Compland	1,37
22.	Cersanit	1,34
23.	Echo	1,02
24.	Softbank	1,95
25. - 81.	dalších 57 bazických emisí s váhou menší než 1,00 %	14,72

Source: http://www.wse.pl.com/.

The similar structure demonstrates the most notable basis issue composition of the Warsaw WIG index. This index differs not only from the PX-50 index but also from all other by the quantity of 81 basis issues. Since 57 out of them have the lower weight in the basis than 1%, I am presenting only those with the higher number in the table.

Table 4 - Index basis of the BUX towards 3rd March 2003

Pořadí	Název emitenta	Váha emise (%)
1.	OTP	26,43
2.	MOL	23,42
3.	MATÁV Rt.	22,31
4.	Richter	15,7
5.	Egis	4,17
6.	TVK	1,87
7.	Danubius	1,31
8.	DÉMÁSZ Rt.	1,29
9.	RÁBA Rt.	0,92
10.	NABI	0,75
11.	Pannonplast	0,55
12.	BorsodChem	0,54
13.	Antenna Hungária	0,42
14.	Synergon Informatikai Rt.	0,32

Source: http://www.bse.hu/.

The BUX stock index, due its quantity of the basic issues, stands closest to the PX-50index, which is represented by the economic branches. The most notable share (each over 10% and in total 87.86%) in the total basic is represented by four companies: OTP Bank, Oil concern MOL, Telecommunication company MATAV and pharmaceutical company Richter.

Table 5 - Basis index of the SAX towards 31st March 2003

Pořadí	Název emitenta	Váha emise (%)
1.	Slovnaft, a.s.	30,03
2.	Nafta a.s.	23,31
3.	Všeobecná úverová banka a.s.	21,97
4.	Slovakofarma, a.s.	11,81
5.	VSŽ akciová spoločnosť Košice	7,52
6.	OTP Banka Slovensko, a.s.	3,61
7.	Biotika a.s.	1,02
8.	Slovenské energetické strojárne a.s.	0,75

Source: http://www.bsse.sk/.

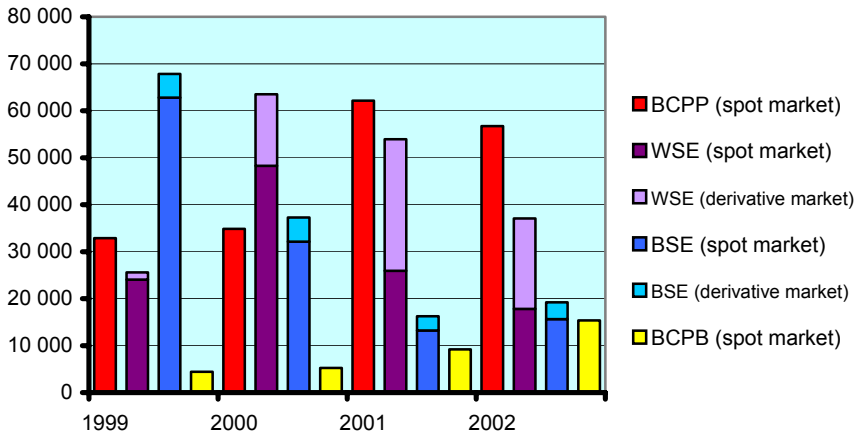
The Bratislava SAX stock index has only 8 basic issues. Two oil companies have the weighted absolute majority (Slovnaft and Nafta), along with Všeobecná úvěrová banka and pharmaceutical company Slovakofarma with the share higher than 10%. The decisive impact on the development of the SAX index has then the movement of the share prices of the chemical companies.

In total, the companies providing telecommunication and financial services have the most remarkable representation among the basic PX-50, WIG and BUX index issues. The companies' shares of these sectors are very sensitive in relation to the interest and non-interest of foreign investors and their share prices develop very similarly at the world stock markets. Hence, the development at the Prague, Warsaw, and Budapest stock exchanges is so strongly correlated. On the other hand, the SAX basic index compositions along with its development are decisively affected by the companies of the chemical industry companies. That is why the Bratislava stock exchange does not let other foreign capital markets influence it and it has its own development rate.

3. Comparison of the Development of Securities Trading

First, we are going to consider the significance of the individual stock exchanges among the Viszegrad Four countries by comparing the development of the individual volume of businesses at these capital markets. We are going to find out to what extent derivative trading participates in these volumes, which has only developed at the Warsaw and Budapest stock exchanges. Next, we are likely to pay a closer attention to the prompt and derivate market.

Figure 3 - Comparison of the development of the total volume of business at the CPP, WSE, BSE and BCPB in the years 1999-2002 (in mio EURO)



Source: Statistical year-book of the BCPP 1999-2002; WSE Fact Book 2000-2003; BSE Annual Report 1999-2002; Year-book of the BCPB 1999-2002.

The significance of the individual stock exchanges measured by the annual volume of businesses changed rapidly in the observed period. While the Budapest stock exchange exceeded twice all the other compared stock exchanges with its turnover of more than 68 milliard EUR in the year 1999, then the WSE dominated at the central-European stock exchanges in the year 2000. In the following two years, the trading activity increased considerably at the BCCP, which with its completed transaction volumes assumed the first position during the two successive years among the stock exchanges of the Viszegrad Four countries. From the graphical perspective, it is obvious that the Bratislava stock exchange is a small capital market. It can hardly compete with the other three stock exchanges as far as its volume of businesses is concerned. However, it showed a great growth tendency in the observed period. The total volume of businesses increased threefold. The trading activity of the Warsaw stock exchange increased twofold in the interannual period of the year 2000. In the subsequent years, this activity dropped noticeably. The Budapest stock exchange was characterized by the visible decline during the entire monitored period with an exception of the last year, when it grew slightly. At the Polish capital market, the share of the derivate trading was rising and it even exceeded with its volume the prompt market in the years 2001-2002. Derivates were traded also in Budapest, where the market share in the total business, as compared to the Warsaw stock exchange, was minimal though. The starting of the option trading did not influence significantly the share in the year 2000.

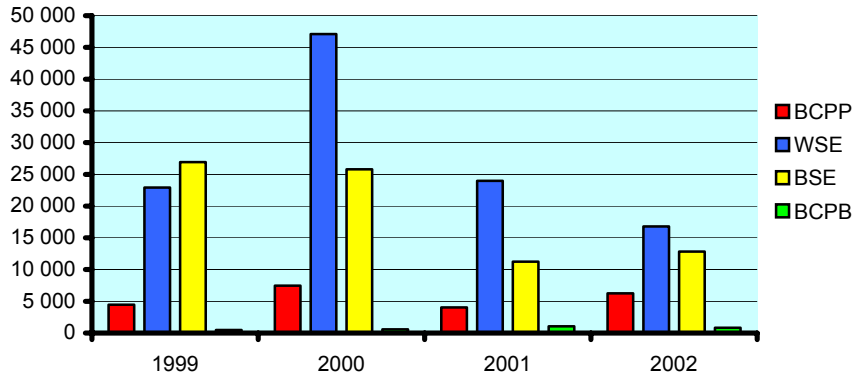
With the view of setting up the list, it was necessary to recalculate the volumes of businesses expressed in the national currencies into the Euro currency. For that purpose, I have applied the exchange rate towards 31st December of the given year.

It is then necessary to take into account that the given values could be affected by the development of the exchange rates.

4. Volumes of Businesses with Stocks

In terms of comparing the stocks of the individual types of securities in the total volumes of businesses of the prompt trade, we have become convinced that the stock trading has the decisive share in the Warsaw and Budapest stock exchanges, whereas bonds hold the main share in the Prague and Bratislava stock exchanges. Should we consider the fact that the total turnover of the minimal three named stock exchanges is similar; the following graph will not surprise our point of view as to the dominant position of the stock markets of the Warsaw and Budapest stock exchanges.

Figure 4 - Comparison of the development of the volumes of business with shares at the BCPP, WSE, BSE and BCPB in the years 1999-2002 (in mio EURO)



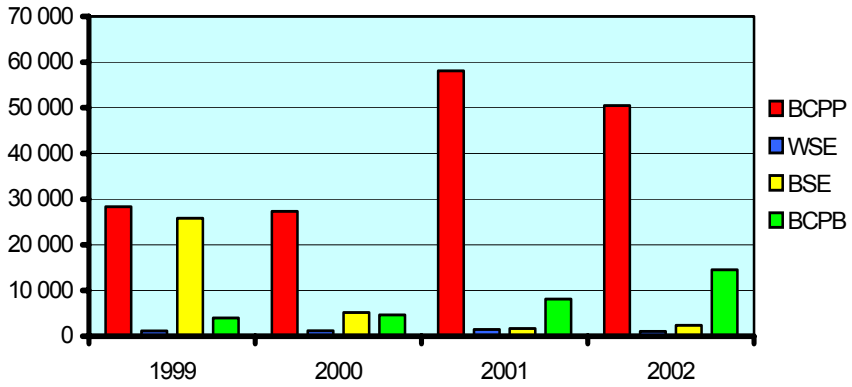
Source: Statistical year-book of the BCPP 1999-2002; WSE Fact Book 2000-2003; BSE Annual Report 1999-2002; Year-book of the BCPB 1999-2000.

The greatest quantity of stocks was traded in Budapest in the year 1999. In the subsequent three years, the Warsaw stock exchange took the leading position among stock markets. At the beginning of the chapter, we became convinced of the declining tendency of the total volumes of businesses at the Warsaw Budapest stock exchanges, particularly at the prompt market. This trend is visible, with the exception of the year 2000, when the worldwide growth in the stock trading took place along with the segments of the stock markets of these stock exchanges.

5. Volumes of Businesses with Bonds

Bond trading has a crucial implication for the Prague and Bratislava stock exchanges. The Bratislava stock exchange is markedly smaller, yet it was the second largest bond market among the comparable stock exchanges followed by the BCPP in the years 2001-2002.

Figure 5 - Comparison of the development of the volumes of businesses with bonds at the BCPP, WSE, BSE and BCPB in the years 1999-2002 (in mio EURO)



Source: Statistical year-book of the BCPP 1999-2002; WSE Fact Book 2000-2003; BSE Annual Report 1999-2002; Year-book of the BCPB 1999-2002.

One can conclude from the graph that the bond market stood behind the total increase in the Prague stock exchange in the year 2001, for the volumes of businesses increased twofold there. The developmental trend of the bond market at the BCPB follows also the entire development of businesses at this stock exchange and it affects it noticeably. In the year 1999, the Hungarian capital market showed a high absolute value of the tradeable bonds. In the other years, the volume of businesses with bonds was minimal as well as in Warsaw though.

As we have become convinced several times of the fact that the stock market is a domain at the Warsaw and Budapest stock exchanges, as well as it is the case of most of the developed world capital markets, the Prague and Bratislava stock exchanges are the bond markets. It is due to the fact that the Czech and Slovak enterprises have not acquired the capital acquisition by increasing the fixed assets, but they rather tend to set out for a long-term financing[3] or they offer access to the strategic partner. The issue of risk-free government bonds has its share in the bond market.

[3] accepting the bank credit or issue of the corporate bonds

5.1 Derivate Market

As it has been several times mentioned above, businesses with financial derivates take place only at the Warsaw and Budapest stock exchanges. Futures contracts along with option business are concluded.

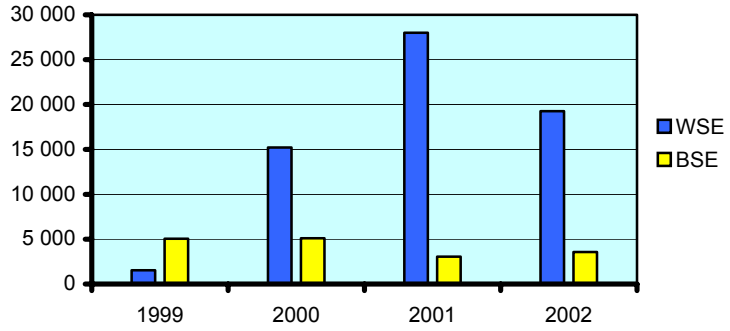
Still the options, as it can be concluded from the following graphs, share minimally in the volume of businesses of the derivate markets of these stock exchanges, on average in the range of hundredths and tenths of a percentage.

The Prague stock exchange has already obtained the derivate trading licence. Since the year 2001, the Securities and Exchange Commission has had permission to trade in futures and options for the stock index, with the futures derived from interest rates, along with the basket of the government bonds. In spite of this fact, the stock derivate trade has not been started yet. The cause for this fact is the low number of clients, who have interest in these investments.[4]

5.2 Volumes of Businesses with Futures

Futures businesses were initiated as early as in the year 1995 at the Budapest stock exchange. Yet, their share in the total volumes of businesses has never reached such a level as it has been the case of the Warsaw stock exchange, where futures contracts have been concluded since the year 1999.

Figure 6 - Comparison of the development of the volumes of businesses with futures at the WSE and BSE in the years 1999-2002 (in mio EURO)



Source: WSE Fact Book 2000-2003; BSE Annual Report 1999-2002.

[4] Year-book of Hospodářské noviny 2002

Still in the year 1999, there was a higher turnover of futures contracts at the BSE. In the following years, the total volumes of businesses of the Budapest stock exchange declined and that trend was visible also with futures businesses, of which volumes ranged from 3 to 5 milliards EUR in the years 1999-2002. So in the year 2000, the leading position was taken by the WSE in relation to the volumes of businesses. Gradually, this type of the financial derivates gained a great popularity at the WSE. In the year 2000, it marked an interannual growth of 990% and one year later, it almost increased twofold, though there was a noticeable decline in the total businesses in that year. The share of futures contracts in the total volumes of businesses was considerable and it reached the value of 28 milliards EUR in the absolute figures. In the year 2002, this trend continued, however, under the affects of another decrease, the turnover of futures contracts slightly dropped.

At present, futures contracts for the BUX stock index are concluded at the Budapest stock exchange, along with the stocks of some selected companies MOL, Matáv, TVK, OTP, Richter, Borsodchem, Antenna, Csopak, Danubius, Démász, Egis, Fotex, Globus, Graboplast, Graphisoft, Humet, IEB, Mezőgép, NABI, Pannonplast, Pick, Prímagáz, Rába, Synergon, Zalakerámia, Zwack, then for foreign currency exchanges (USD, EURO, GBP, CHF, JPY) and also for the interest rates (three- and twelve month interest rates of treasury bills, three month interest rates of government bonds and for the BUBOR interest rate).

6. Developmental Perspectives

"Capital market is not a privilege of the 20th century", states an analyst of the global markets Pavel Kohout in his article in MF Dnes. "It was originated at the turn of the 16th and 17th centuries in the then Dutch Republic, which required money for financing the fight against the Spanish occupation and for that reason it issued government bonds with a long date of maturity, which began to be traded at the Amsterdam stock exchange. The current trendy term "globalisation" did not exist at that time yet" [5]. It is exactly globalisation, which is characteristic of all areas of the human activities and then also for securities trading in the 20th century.

The traditional trade at the floor changed steadily into modern electronic stock exchanges. In communicating with other participants of the capital market, new procedures and technologies from the e-business field are applied. Some opinions appeared that globalization and internationalization of capital markets would lead to the transfer of securities trade into a few world financial centres such as London, New York, Hong Kong and Tokyo.

And the first merger tendencies of the stock exchanges are reality despite the existing absence of the single regulatory environment and tax legislative. In March 2000, the stock exchanges in Paris, Brussels and Amsterdam confirmed the formation of the stock exchange institution Euronext. To its preferences belong higher liquidity, transaction costs savings, along with attractiveness for investors resulting from it. Two

[5] Kohout P.: *Capital market is not a privilege of the 20th century,* MF Dnes, 29. 10. 1998

months later, the London and Frankfurt stock exchanges announced an agreement on the creation of the common market iX (International Exchanges), which will cover 53% of the total volume of businesses with securities in the old continent. By the turnover of businesses it will be placed third in the world, and it will link with the NASDAQ[6] market. The formation of the stock exchange is to take place within the half of the coming year, however, the London stock exchange backed off the project and thus it was not implemented.

The analysts judge that the stock exchanges, which will not join the new arising alliances, are likely to face the fact that they will stay out of investors' interest. It holds especially true for the capital markets in Central and Eastern Europe. "For the Prague stock exchange, which is the fringe market, there is only one chance of making it more attractive for foreign investors," says Petr Kukla from Private Investors. [7] To the contrary, Petr Kohout adds that "Europe and the world go through unexpected renaissance of small regional and national stock markets. … In reality, what happens is that there is the exact opposite of the centralisation of capital markets. Although the volume of international capital flows increases steadily, the notion of international stock exchanges has not taken hold. Why? Nobody needs them. International investors need international brokerage firms and investment banks. These of course are active at the local markets, which are physically present in the given economies. Entrepreneurship is principally a matter of interpersonal communitarian of the direct contact. Therefore, small stock exchanges are important. … Capital market is much more than the movement of money through the electronic nets. It cannot exist without the issue of new securities. The issuers of new stocks and bonds look for the environment with low costs. For that reason, the issue of stocks in Vienna or London or even in New York would be absolutely unacceptable for a small firm. The language barrier, legal differences and the geographical distance play its role" [8] What is interesting is also the statement of the financier Jana Sýkora. According to him, good companies should have the chance to leave for more notable markets. The Prague stock exchange could become then a kind of a beginning – enterprises would first enter it, and if they do well, then they will try their chance elsewhere[9].

Yet, the first integration tendencies have appeared at the Central-European markets. In November 2000, the Vienna and Frankfurt stock exchanges participated commonly in creating the stock exchange Newex for trading in Central-European titles. The project has not become established. It suffered from low turnovers and following the great losses, it was definitely terminated in the year 2002. [10]

The beginning of the year 2003 brings a new wave of the integration efforts of the Central-European stock exchanges. Following the two-year decline, during which these stock exchanges tried hard to cooperate and harmonise rather than to create the

---

[6] AP: *A new big stock exchange is being established in Europe*, MF Dnes, 4. 5. 2000
[7] AP:, *A new big stock exchange is being established in Europe* MF Dnes, 4. 5. 2000
[8] Kohout, P.: *Why does the Prague stock exchange have to survive*, MF Dnes, 4. 10. 2000
[9] Michalko, M.: *The Prague stock exchange has its own importance, the experts say*, MF Dnes, 16. 2. 1999
[10] Die Presse, 2. 4. 2003

single market and to gain access to the western European markets, meant the struggle for existence for some stock exchanges. Otherwise they made a way through and viewed rather the formation of the Vienna stock exchange Newex as a threat. The merger of the stock exchanges is still being discussed. The question remains to what extent it is an idle talk.

In April 2003, the Austrian finance minister began anew to tackle the issue of forming the single stock exchange with the involvement of the Czech Republic, Slovakia and Hungary, and which would be seated in Vienna[11]. Wieslaw Rozlucky, Polish stock exchange manager, would be interested in merging with the Prague or any other Central-European stock exchange. According to him, it is matter of working out the plan along with the legal harmonisation. Barbora Lazarová, deputy general director of the BCPB, does not consider the merger of the Bratislava stock exchange with any other stock exchange as real[12] before the EU entry due to the heterogeneous legislation and different rules. Mária Fujarová, general director of the Bratislava stock exchange, has regarded as important to take advantage of each opportunity to become involved in the integration structures for a longer period.

The fact that one has not succeeded in creating an integration unit in Central Europe, according to her, weakens the position of individual stock exchanges.[13] BCPP General Director, Pavel Holman shows a negative point of view as to the merger. He regards speculations as groundless as to the merger, which is inevitable for the further existence of the Prague stock exchange. The Prague stock exchange still survives despite being classified into the endangered stock exchange for many times.[14] František Jakub, manager of the Securities and Exchange Commission, prefers the cooperation or merger with any of the developed European stock exchanges. He does not believe that the interconnection of the regional stock exchanges is feasible in the near period in Central Europe, since their perspectives are notably different. According to him, the way of the cooperation of stock exchanges in the region leading to the formation of the single stock markets is not absolutely ruled out yet.[15]

[11] ČTK: *Austrian minister wants the Central-European stock exchange*, MF Dnes, 3. 4. 2003
[12] Michl, A.: *Stock exchange merger is still being discussed*, Hospodářské noviny, 4. 4. 2003
[13] Javorský, J.: *Stock exchange boss lets herself advised while trading*, SME, 8. 11. 2001
[14] Michl, A.: *Stock exchange merger is still being discussed*, Hospodářské noviny, 4. 4. 2003
[15] Klímová, J. – Jasminský, M.: *The Prague stock exchange has to change to survive,* MF Dnes, 24. 4. 2002

7. Conclusion

The development of capital markets at the turn of the millennium and immediately afterwards, had shown that globalisation of the stock exchange markets by creating multinational stock exchange alliances is not a burning issue, as one could originally imagine. On one hand, the market integration encounters a great many problems as to the united legal harmonisation, different stock exchange rules and trading system, on the other hand, it comes across issuers' and investors' interest or non-interest in the merger. It proved that even the regional markets have their unsubstitutable importance. The truly integrated institutions function only in Western Europe, where their establishment was facilitated by the existence of the single currency along with the legal harmonisation within the European Union. The stock exchanges of Central and Eastern European countries – together with the countries of the Viszegrad Four try to make efforts in relation to the strengthening of its own regional importance along with the cooperation with the developed Western European markets. The discussions concerning the merger of the stock exchange markets are currently only lead among those countries.

Abstract

Vědecko výzkumná zpráva se zabývá problematikou vývoje a fungování burzy s cennými papíry v středoevropském regionu, hlavně České, Maďarské, Polské a Slovenské burzy. Popisuje vývoj těchto burz a podrobněji je uvedeno vzájemné srovnání jednotlivých indexů za období od roku 1999 do konce roku 2002. Kromě cenných papírů se začíná objevovat i první skutečné zboží jako předmět obchodu. Začátek vzniku moderních burz je spojen s amsterdamskou burzou, která začíná používat techniky moderních obchodů a burzovní spekulace, zejména s rozvojem nových cenných papírů – akcií a dluhopisů. V tomto článku je uvedená pouze část řešení tohoto úkolu, neboť se jedná o rozsáhlejší pohled na vývoj těchto burz od jejich vzniku až do konce roku 2002.

References

[1] Statistical year-book of the BCPP 1999-2002
WSE Fact Book 2000-2002
BSE Annual Report 1999-2002
Year-book of the BCPB 1999-2002

[2] http:// www.pse.cz/
http:// www.wse.pl.com/
http:// www.bse.hu/
http://www.bsse.sk/

.

TRADING AND SETTLEMENT IN THE EU COUNTRIES

Miroslav Kmeťko[1]

Key words

financial system, clearing and settlement of payments, cross-border investment

1. Introduction

Financial systems perform various functions, like the clearing and settlement of payments, mobilisation and allocation of investment funds, intertemporal smoothing of consuption by households and expenditure by firms, and the pooling and sharing of risks (Allen and Gale 2000, Metron and Bodie 1995). In developed financial systems, these functions are carried out by a range of institutions and financial intermediaries.

2. Differences Between European and Anglo-Saxon Financial Systems

The continental European financial system is usually described as being bank-based, in contrast to the market-based Anglo-Saxon system. Such a basic description runs the risk of being too much of a caricature: neither the European nor the US financial system is a polar case. They essentially differ in the relative proportion of finance that is channelled through banks or markets. Hartmann *et al.* (2003) provide a more balanced comparison between the eurozone and the United States, and ECB (2002) provides similar information on individual EU countries. Nevertheless, while the aggregate financial depth of both regions are relatively similar, both studies highlight a few striking differences. First, US non-financial corporations obtain a substantial share of their external finance from the capital market while this source of funding is far less important in the eurozone. Second, US households have a much stronger preference for equities. Third, European non-financial firms have substantial shareholdings in other non-financial firms (this is related to group pyramid structure) and also have extensive intercompany debt. Finally, eurozone financial institutions have large amounts of interbank deposits.

[1] University of Economics in Bratislava, Faculty of Business Management, Department of Corporate Finance, Slovak Republic. E-mail: mkmetko@yahoo.com, phone 00421 2 6729 5660

3. Financial Integration and Firm´s Growth

European integration, and creation the European Monetary Union (EMU) moves towards the Single Market for financial services with expect of benefits on the demand side. To illustrate the growth enhancing potential of financial sector integration, Giannetti *et al.* simulate the effect of financial integration - interpreted as firms' access to a financial system similar to that of the United States - on the growth of value added in the EU manufacturing industry. These simulations rest on cross-sectional regression analyses that estimate the link between firm growth and financial development while controlling for other variables that may vary across countries and firms, such as differences in firms' dependence on external finance. The results also suggest that small firms should benefit more than large firms from financial integration provided that EU financial sector integration contributes to the development of local financial markets or makes small firms less dependent on local providers of finance. The second study (London Economics 2002), prepared for the European Commission, takes a different approach to gauging the macroeconomic impact of integration of EU financial markets. First, the study estimates the impact of European financial market integration on the cost of equity and bond finance and, second, simulates the likely macroeconomic impact of the estimated changes in the cost of equity and bond finance. The simulation results suggest an EU-wide real GDP increase of close to 1 percent. It is worth noting that a good part of the simulated output increase results from an increasing use of market finance and not only from a general decline in the unit cost of corporate finance. The third study (Heinemann and Jopp 2002) has a different focus than the previous two. It concentrates on the integration of retail markets for financial services, notably those offered by banks, insurance companies, and investment funds. Benefits pointed out by Heinemann and Jopp include a wider choice in products, particularly in small countries; an annual cost saving potential of EUR 5 billion in the investment fund industry and lower interest payments on mortgage loans, ranging from 0.8 to 2.6 percent of the loan amount. This three sudies clearly indicate that fully integrating EU national financial systems should lead to significant benefits.

4. The Clearing and Settlement Within EU Countries.

Overall, although the benefits to European citizens from further financial integration are substantial, the creation of a unified EU financial market has been a long time in the making. As with other aspects of integration, an important reason for this is that tearing down national barriers, notably in cross-border cleaning and settlement securities within the European Union. Investor demand fo foreign securities has increased sharply within the EU since the introduction of the euro. By his advent, regulations limiting international investment have ceased to be effective in the euro zone, and increased correlation of national markets has led to sectoral investment acroos the euro zone. Besides eliminationg the effects of home bias and diversifying portfolios across the euro zone, a sectoral approach requires a major restructuring of portfolios. Futhermore, the integrated money markets generated by EMU are facilitating the use of commercial paper for short-term borrowing by companies and investment in security repurchase agreements and commercial paper as alternatives to bank deposits. As

a result of these developments, banks in Europe are facing challenges to their traditional business that leading them to expand their asset management services and other investment bank services to maintain profitability (Davis 2003). The pressure to expand non- traditional banking activity has been reinforced by the elimination of commissions for foreign exchange transactions within euro zone. However, the EU infrastructure for clearing and settling cross-border transactions remains highly fragmented according to a report submitted to the European Commission by Alberto Giovannini, as Chairman of the group of financial experts on capital market issues.

The clearing and settlement process is an essential feature of smoothly functioning securities market, providing for the efficient and safe transfer of ownership from the seller to the buyer. The process involves four main steps, which are confirmation of the terms of the securities trade, clearance of the trade by which the respective obligations of the buyer and seller are established, delivery of the securities from the seller to the buyer and the reciprocal payment of funds. When both delivery and payment are finalised, settlement of the securities transaction has been achieved.

The infrastructure for clearing and settling is highly fragmented in the Eupean Union. There are a very large number of entities whose primary bussiness is clearing and settling. As a result, the pan-EU investor is required to access many national systems that provide very diffrent types of services, have different technical requirement and market practices, and operate within different tax and legal frameworks. Additional costs from cross-border trading is a result from this infrastucture. Giovannini Group identified three types of additonal costs in cross-border clearing and settlement.

1. Direct costs in the form of higher fees for the services provided;

2. indirect costs in the form of extra back-offices facilities that must be maintained or bought in from an intermediary and

3. opportunity costs in the form of innefficient use of collateral.

5. Bariers of Clearing and Settlement

The barriers to efficient cross-border clearing and settlement, found by Giovannini Group, in the EU are categorised under three headings as follows:

Technical Requirements / Market Practises

- diversity of IT platforms/interfaces;
- need to maintain multiple membership of settlement systems;
- national differences in rules governing corporate actions;
- differences in the availability/timing of intra-day settlement finality;
- impediments to remote access;
- national differences in settlement periods;
- national differences in operating hours/settlement deadlines;
- national differences in securities issuance practice;

- restrictions on the location of securities and
- restrictions on the activity of primary dealers and market-makers.

Taxation

- withholding tax procedures disadvataging foreign intermediaries and
- tax colletion funtionality integrated into settlement systém.

Legal Certainty

- national differences in the legal treatment of securities;
- national differences in th legal treatment of bilateral netting and
- uneven application of conflict of law rules.

All these barriers are result of past history when securities trading followed national lines.

6. Conclusion

Creating the Single Market within the European Union and establishing Euro was the primary idea to increase economic growth in the euro area. For a good function of financial system and his part settling and clearing securities is needed to define priority for removing these barriers. Subsequent concentration on global level within sector should remove bariers relating to information technology. Taxation and legislation barriers shoul be lifted to national goverments. I expect, entering the EU by SR, the capital market will solve the same tasks of settlement and clearing of securities within the Single Market.

Abstract

Európska integrácia a vytvorenie Európskej menovej únie sú predpokladom pre jednotný trh vo finančných službách s očakávanými výhodami hlavne na strane dopytu. Reálne výhody pre obyvateľov si však vyžaduje dlhší čas potrebný pre vytvorenie skutočného Európskeho jednotného finančného trhu. Hlavným dôvodom je odstránenie národných bariér hlavne v oblasti vysporiadania obchodov s cennými papiermi na medzinárodnej báze v rámi EÚ. V článku sú charakterizované hlavné bariéry vysporiadania členené do troch oblastí nasledovne: technické požiadavky resp. praktiky trhu, zdaňovanie a právna oblasť.

References

[1] ALLEN, F., GALE, D. Comparing financial systems. *MIT Press*, London: Cambridge (Mass.) and London, 2000.

[2] MERTON, R. C., BODIE, Z. A Conceptual Framework for Analyzing the Financial Environment. Crane, D.B. et al. (eds.). The global financial system. *Functional Perspectiv*e. Harvard, USA: Harvard Business School Press, 1995.

[3] HARTMANN, P., MADDALONI, A., MANGANELLI, S. The Euro Area Financial System: Structure, Integration and Policy Initiatives. *European Central Bank Working Paper*, no. 230, 2003.

[4] ECB (2002). *Report on financial structures.* European Central Bank, Frankfurt.
London Economics. Quantification of the Macro-economic Impact of Integration of EU Financial Markets. *Final Report to the European Commission DG for the Internal Market*, November 2002.

[5] GIANNETTI, M., GUISO, L., JAPPELLI, T., PADULA, M., PAGANO, M. Financial Market integration, Corporate Financing and Economic Growth. *European Commission DG ECFIN Economic Paper,* no. 179.

[6] HEINEMANN, F., JOPP, M. The Benefits of a Working European Retail Market for Financial Services. *Report to the European Financial Services Round Table*. Institut für Europäische Politik, Berlin.

[7] DAVIS, E.P. Institutional Investors, Financial Market Efficiency, and Financial Stability. *European Bank papers*. vol. 8, no. 1.

COMPARISON OF CHOSEN CAPITAL MARKET INDICATORS IN THE CZECH REPUBLIC AND SLOVAK REPUBLIC *

Dana Dluhošová

Tomáš Tichý

Zdeněk Zmeškal[†1]

Key words

capital market, small emerging economic, Czech capital market, Slovak capital market, risk, stock indices, beta, Cohen beta

1. Introduction

A capital market plays the key role in financial decision-making and is important indicator of economic condition and development. Significant are also information provided by the market. Desirable state and assumption is to the information efficiency be fulfilled. Thinking about specifics of small open economic, what's more in stage of transformation, is useful and in attention of financial analyst.

In this paper we study and compare chosen indicators of stock capital markets in two small emerging economics of Central Europe, in particular Czech Republic and Slovak Republic. Within this study the Czech capital market is characterised by stock market index PX50 and two particular stocks, Český Telekom, a.s. (CT) and České energetické závody, a.s. (CEZ). Similarly, the Slovak capital market is characterised by stock market index SAX and two stocks: Slovnaft, a.s. and Všeobecná úverová banka, a.s. (VUB).

Comparison is based on following indicators: expected return, standard deviation, skewness, kurtosis, correlation of particular stocks with respect to both indices (PX50 and SAX) as well as theirs coefficient according to the CAPM model (relative to PX50 as well as SAX). We also study relationships between both indices and autocorrelation of residues. Besides that, we have decided to compare alternative beta

* This research was partially supported by ČR-SR grant of MŠMT 181-2002.
† We also greatly acknowledge the support given by Grant Agency of Czech Republic (GAČR) 402/02/1046.
[1] VŠB-TU Ostrava, Faculty of Economics, Department of Finance, Sokolská 33, Ostrava 701 21, e-mail: dana.dluhosova@vsb.cz, tomas.tichy@vsb.cz, zdenek.zmeskal@vsb.cz.

coefficient referred to as Cohen's beta coefficient β_{CH}, see Cohen *et al* (1983). The Cohen's beta is defined as

$$\beta_{CH} = \frac{\beta_i + \sum_{n=1}^{N} \beta_{i,n} + \sum_{n=1}^{N} \beta_{i,-n}}{1 + \sum_{n=1}^{N} \beta_{M,n} + \sum_{n=1}^{N} \beta_{M,-n}},$$

where β_i is beta for *i*-th asset, $\beta_{i,\pm n}$ is beta of *i*-th asset with market returns leading (lagging) by *n* periods, $\beta_{M,\pm n}$ is market beta from regressing the return on the market leading (lagging) by *n* periods on the market return. It was showed that when stocks do not trade at the same level of frequency as the market index, it is probably to produce that biased beat estimates. Therefore, the stability of β can be characterised by $\beta = \beta_{CH}$.

The comparison of chosen indicators is based on market data from January 1999 to June 2003. We study weekly as well as monthly returns. We should note that by "monthly" returns we mean rather four-week return.

2. Description of Weekly Returns

Weekly returns evolution of both indexes is illustrated at Graph 1, for approximation of probability distribution functions, see Fig. 1 and Fig. 2, values of indicators used to compare the evolution of both capital markets are included at Tab. 1, see Appendix for results.

It is apparent that return of PX50 is overwhelmed by return of SAX; standard deviations are comparable. On the other hand the non-normality of returns is evident from probability distribution shapes of weekly returns of both indices; in particular returns of SAX have heavy tails. The correlation between markets is not very significant (0,0411).

Looking more closely at chosen stocks we see that standard deviations are similar, expected returns differs, skewness as well as kurtosis is present. According to β coefficient we can characterise two stocks (CEZ and VUB) as passive and the other (CT and Slovnaft) as aggressive assets. With the exception of CT, there is apparent significant autocorrelation of weekly residuals, positive in case of VUB and negative in cases of CEZ and Slovnaft.

Probability distribution shape of weekly returns for both indices is typical for financial returns, in general. Common characteristics as heavy tails and kurtosis are present. We can see significantly higher volatility of returns due to lower liquidity.

Looking more closely at Cohen's beta β_{CH} for $N = 3$ it is clear that instability and autocorrelation is huge especially for CT. In particular values for both Czech stocks:

$$\beta_{CH}(\text{CEZ}) = \frac{\beta_i + \sum_{n=1}^{N} \beta_{i,n} + \sum_{n=1}^{N} \beta_{i,-n}}{1 + \sum_{n=1}^{N} \beta_{M,n} + \sum_{n=1}^{N} \beta_{M,-n}} = \frac{0{,}8643 + 0{,}6037 + 0{,}2543}{1 + 0{,}2962 + 0{,}2962} = \frac{1{,}7623}{1{,}5924} = 1{,}1068$$

and

$$\beta_{CH}(\text{CT}) = \frac{\beta_i + \sum_{n=1}^{N} \beta_{i,n} + \sum_{n=1}^{N} \beta_{i,-n}}{1 + \sum_{n=1}^{N} \beta_{M,n} + \sum_{n=1}^{N} \beta_{M,-n}} = \frac{1{,}6035 + 0{,}5016 + 0{,}4106}{1 + 0{,}2962 + 0{,}2962} = \frac{2{,}5157}{1{,}5924} = 1{,}5799.$$

Similarly values for Slovnaft and VUB

$$\beta_{CH}(\text{Slovnaft}) = \frac{\beta_i + \sum_{n=1}^{N} \beta_{i,n} + \sum_{n=1}^{N} \beta_{i,-n}}{1 + \sum_{n=1}^{N} \beta_{M,n} + \sum_{n=1}^{N} \beta_{M,-n}} = \frac{1{,}0542 - 0{,}2694 + 0{,}3013}{1 - 0{,}0644 - 0{,}0644} = \frac{1{,}0861}{0{,}8711} = 1{,}2468,$$

$$\beta_{CH}(\text{VUB}) = \frac{\beta_i + \sum_{n=1}^{N} \beta_{i,n} + \sum_{n=1}^{N} \beta_{i,-n}}{1 + \sum_{n=1}^{N} \beta_{M,n} + \sum_{n=1}^{N} \beta_{M,-n}} = \frac{0{,}3069 + 0{,}3492 + 0{,}2652}{1 - 0{,}0644 - 0{,}0644} = \frac{0{,}9169}{0{,}8711} = 1{,}0526.$$

3. Description of Monthly Returns

Weekly returns evolution of both indexes is in Graph 2, for approximation of probability distribution functions, see Fig. 3 a Fig. 4. Values of indicators used to compare the evolution of both capital markets are included at Tab. 2, see Appendix for results.

If returns were independent, then following equations should hold

$$\begin{aligned} \text{expected return}_{\text{monthly}} &= \text{expected return}_{\text{weekly}} \cdot 4, \\ \text{standard deviation}_{\text{monthly}} &= \text{standard deviation}_{\text{weekly}} \cdot \sqrt{4}. \end{aligned}$$

Without doubt, we cannot confirm independency of weekly returns. Computed values are lower. Working with monthly returns we receive higher skewness as well as kurtosis. In contrast, correlation of indices is indeed lower (-0,0096). It means returns are statistically independent. Coefficient β for CEZ implies that this asset is aggressive.

Looking more closely at Cohen's beta β_{CH} for $N = 3$ it is again clear that instability and autocorrelation is huge, with the exception of CEZ. In particular, values for both Czech stocks and monthly returns:

$$\beta_{CH}(\mathrm{CT}) = \frac{\beta_i + \sum_{n=1}^{N} \beta_{i,n} + \sum_{n=1}^{N} \beta_{i,-n}}{1 + \sum_{n=1}^{N} \beta_{M,n} + \sum_{n=1}^{N} \beta_{M,-n}} = \frac{1{,}5760 - 0{,}2242 + 0{,}2740}{1 + 0{,}115 + 0{,}115} = \frac{1{,}6204}{1{,}2230} = 1{,}3250$$

and

$$\beta_{CH}(\mathrm{CEZ}) = \frac{\beta_i + \sum_{n=1}^{N} \beta_{i,n} + \sum_{n=1}^{N} \beta_{i,-n}}{1 + \sum_{n=1}^{N} \beta_{M,n} + \sum_{n=1}^{N} \beta_{M,-n}} = \frac{1{,}2083 - 0{,}2336 + 0{,}2331}{1 + 0{,}115 + 0{,}115} = \frac{1{,}2088}{1{,}2230} = 0{,}9884.$$

Similarly for stocks chosen from Slovak capital market:

$$\beta_{CH}(\mathrm{Slovnaft}) = \frac{\beta_i + \sum_{n=1}^{N} \beta_{i,n} + \sum_{n=1}^{N} \beta_{i,-n}}{1 + \sum_{n=1}^{N} \beta_{M,n} + \sum_{n=1}^{N} \beta_{M,-n}} = \frac{1{,}4871 - 0{,}1049 - 0{,}0771}{1 + 0{,}0175 + 0{,}0175} = \frac{1{,}3052}{1{,}0351} = 1{,}2610$$

and

$$\beta_{CH}(\mathrm{VUB}) = \frac{\beta_i + \sum_{n=1}^{N} \beta_{i,n} + \sum_{n=1}^{N} \beta_{i,-n}}{1 + \sum_{n=1}^{N} \beta_{M,n} + \sum_{n=1}^{N} \beta_{M,-n}} = \frac{0{,}7390 + 0{,}4896 + 0{,}4044}{1 + 0{,}0175 + 0{,}0175} = \frac{1{,}6330}{1{,}0351} = 1{,}5777.$$

4. Conclusion

We can conclude that the risk defined by standard deviation of studied capital markets is similar. However, expected returns of chosen indices are different. There is not apparent significant correlation between these markets. The empirical distribution function of weekly as well as monthly returns confirms the assumption of non-normality (given by large skewness and kurtosis). Furthermore, autocorrelation of residuals (based on weekly returns) is significant.

Besides that, and as was proved by Cohen's beta coefficient, standard of the CAPM model is not stable. It is confirmed for monthly as well as weekly returns. It is obvious that in this case we can apply the CAPM model to calculate cost of capital only hardly.

Comparison of Czech and Slovak capital markets based on chosen assets and indicators during the period of 1/99 – 6/03 provides evidence of small liquidity and lower market information efficiency. Studied capital markets are also different and

unconnected. As a further step to verify these results we should make out similar analysis for daily, quarterly or even year returns.

Abstract

Hlavním cílem článku je srovnat vybrané ukazatele kapitálové trhu v rámci dvou malých ekonomik. Srovnání je provedeno na akciovém indexu PX 50 a SAX a dále na vybraných akciích s významným tržním podílem. Studována jsou týdenní, stejně jako měsíční data. Rovněž je určen parametr beta alternativní metodou, viz Cohen, Hawawini, Mayer, Schwartz and Whitcomb (1983).

References

[1] CAMPBELL, J. Y. – LO, A. W. – MACKINLAY, A. C. *The Econometrics of Financial Markets*. Princeton University Press, 1997.

[2] COHEN, K. – HAWAWINI, G. – MAYER, S. – SCHWARTZ, R. – WHITCOMB, D. Estimating and adjusting for the intervaling-effect bias beta. *Management Science* 29, pp 135-148, 1983.

[3] KARIYA, T. *Quantitative Methods for Portfolio Analysis*. Kluwer Academic Publishers, 1993.

[4] POKORNY, M. *An introduction to econometrics*. Blackwell Publishers, 1987.

[5] ZMEŠKAL, Z. *Finanční modely*. Ostrava: VŠB-TU, 2002.

Appendix

Figure 1 - Evolution of weekly returns – stock market indices

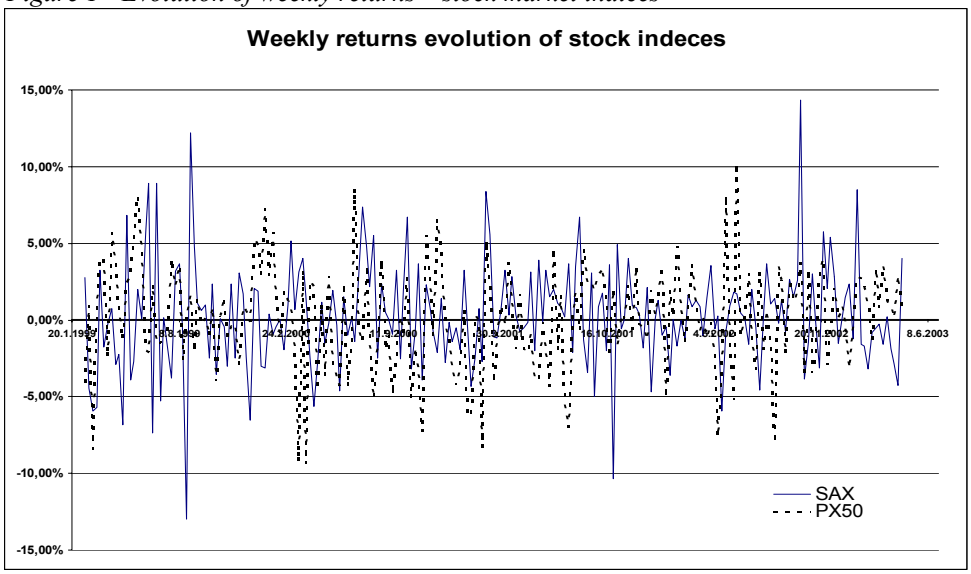


Table 1 - Comparison of indicators based on weekly returns

ASSET	*SAX*	*PX50*	*CEZ*	*CT*	*Slovnaft*	*VUB*
share in index	-	-	18,75%	15,77%	31,82%	25,54%
expected return	0,30%	0,12%	0,40%	-0,21%	0,16%	0,26%
standard deviation	3,42%	3,34%	5,17%	6,29%	6,04%	6,24%
skewness	0,26	-0,19	0,83	-0,23	1,05	-1,73
kurtosis	2,45	0,49	4,89	0,81	6,31	17,99
correlation to PX50	0,0411	1	0,5579	0,8507	0,1044	0,0159
correlation to SAX	1	0,0411	-0,0591	0,0546	0,5975	0,1683
beta relative to PX50	0,0421	-	0,8643	1,6035	0,1888	0,0297
beta relative to SAX	-	0,0401	-0,0893	0,1004	1,0542	0,3068
beta $_{CH}$			*1,1068*	*1,5799*	*1,2467576*	*1,0526123*
DW			2,257702191	1,9850582	2,2673933	1,521793
autocorrelation			negative	no	negative	pozitive

Figure 2 - Evolution of monthly returns – stock market indices

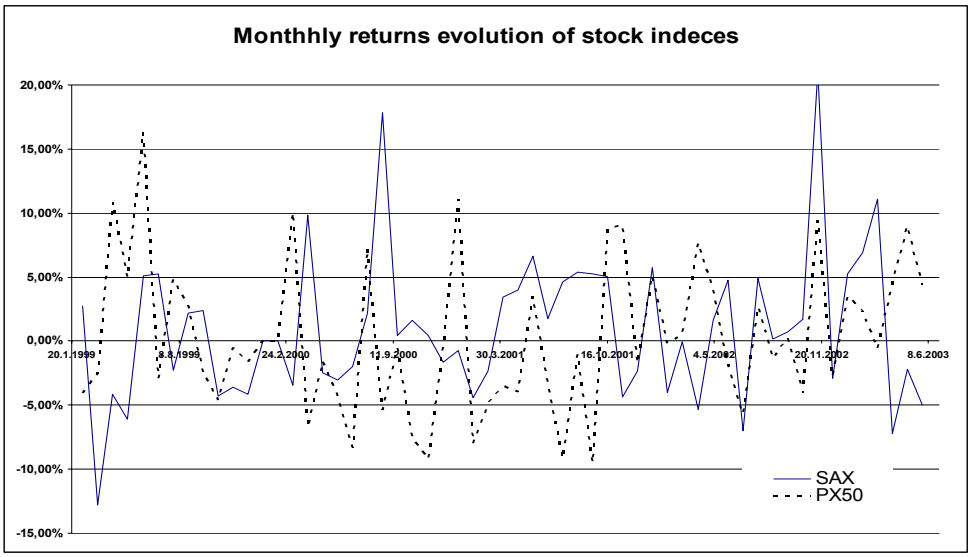


Table 2 - Comparison of indicators based on monthly returns

ASSET	*SAX*	*PX50*	*CT*	*CEZ*	*Slovnaft*	*VUB*
share in index	-	-	15,77%	18,75%	31,82%	25,54%
expected return	0,92%	0,34%	-0,82%	0,74%	0,76%	1,23%
standard deviation	5,76%	5,85%	10,64%	9,94%	10,62%	12,67%
skewness	0,96	0,49	0,33	0,10	0,76	-0,02
kurtosis	2,47	-0,23	0,08	1,43	2,66	8,36
correlation to PX50	-0,0096	1	0,8639	0,7116	0,1193	-0,0731
correlation to SAX	1	-0,0096	0,0886	-0,0051	0,8064	0,3361
beta relative to PX50	-0,0094	-	1,5706	1,2083	0,2165	-0,1582
beta relative to SAX	-	-0,0097	0,1636	-0,0087	1,4871	0,7390
beta $_{OH}$			*1,3250*	*0,9884*	*1,2609814*	*1,5777068*
DW			1,946098693	2,2106494	1,8406923	2,5027675
autocorrelation			no	no	no	negative

Figure 3 - Probability distribution of weekly returns (ČR)

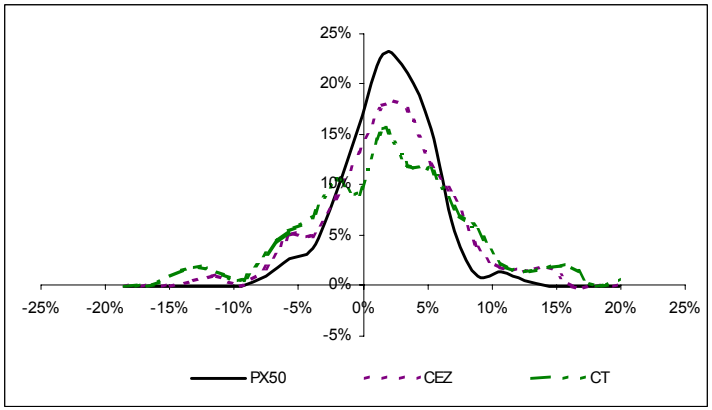


Figure 4 - Probability distribution of weekly returns (SR)

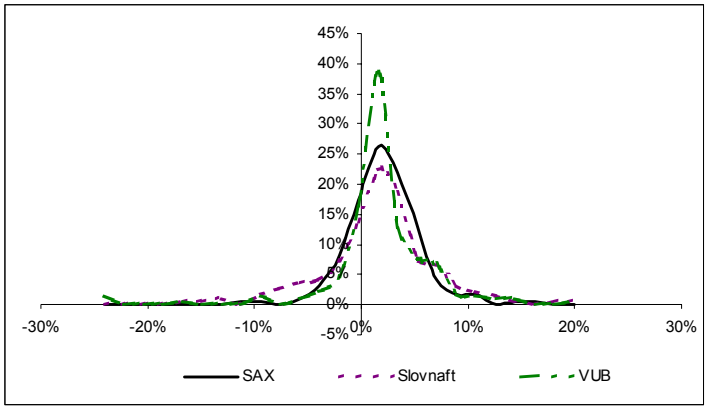


Figure 5 - Probability distribution of monthly returns (ČR)

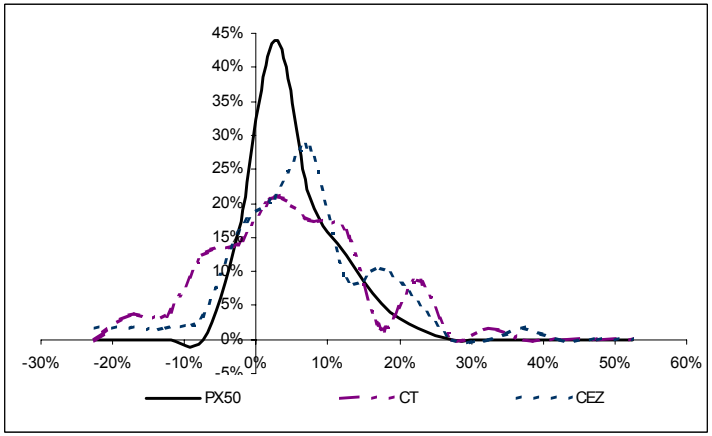
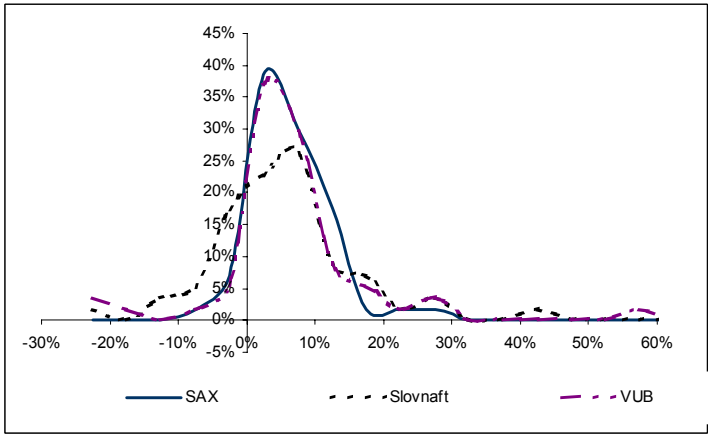


Figure 6 - Probability distribution of monthly returns (SR)



BANKS WITHOUT BRANCHES

Dana Forišková[1]

Key words

information technology, electronic banking, distribution channels

1. Introduction

Even if banks are assigned to conservative institutions, they have always been a part of areas, which quite exploited to his activities information and communication technology. Reason of introducing was working and storing a great deal of data and set, which is liable to severe safety device. Banks became on informative technologist quite independent. Bank management couldn't do strategic or surgical decision unassisted managerial informative technology. ICT change and access technique pool to client.

2. Positive Influence Competition

Bank market is highly competitive market, whereat conditions are dictated by clients. To be banks successful on this market, they try to introduce new products and services and push about availability these services and up-to-date facilities attendance.

Products at today's levels of bank's information technology develop by building a number of system parameter and product to take over competition and conforms policy banks and client banks.

At present, banks try to offer client global services in packages, which save client's time and costs.

Banks try to create relations with client, which exploited sale of other products. It requires, among others, effective support of information system, to be bank able at all to competently evaluate needs of client, had actual survey about state of all business with them and was able to manage then efectively. This access leads to

[1] Ing. Forišková Dana, VŠB-TU Ostrava,Ekonomická fakulta, katedra Financí,mail:dana.foriskova@vsb.cz

individuation of product offer and attendance. For final consumer according to their needs.

Availability services has always been limited by physical availability banks for client. This access display at interlock one of the main bank functions, namely at contact of bank with client and in applying of provision banking operations.

Rate and up-to-date facilities system of payments depended on, how was bank for client available physicaly. To satisfy client's need's, broaden out its branch network. This up-to-date facilities was however for banks expensive business.

3. New Possibility of Availability

Last decennium, however, starting detect new possibilities access banks to client.

Setting IT cross banks limit and entails revolution, banking is independent on physical connection banks and client any more. Generally give a name this access „ electronic banking".

From the point of client view this trend means attendance any time, anywhere. Bank's activity is restricted neither in time, nor at point. Starting derive benefit from new channels of distribution as is fax machine, phone, mobile phone, internet.

Bank must solve large amount of problems for this kind to integrate all distribution channels including branches in one object.

3.1 Channels of Distribution

Bank must for effectiveness and effective attendance client channels of distribution impose effective management.

Original classical metrix product x client is necessary to extend to individual channels of distribution. Rest is then on bank's policy, which channel will be used. Substantial element is optimalization. Of course, client requires possibilities utilization by all the possible channels, but the aim of all banks is to redirect client to the cheapest distribution channel.

New form of communication with banks „at a distance" brings to their activities effective supports of all aspect. Effective communication with clients is solved, supports of relation management and sale product and services. Electronic banking allows broaden out banking services up to 24 o'clock every day and 365 days in year and allows face bank's competition.

To the classical distribution channel of direct banking is assigned mobile phone, telephone line, PC, internet.

3.2 Firm's Electronic Banking

Services of electronic banking – mobile arrangement with utilization technology WAP is focused only on client with small data amount. There have been, however, hundreds of firms, which want to communicate fashionably, but mobile networks have not for them capacities.

For mediumly big business are various variants of electronic banking from utilization so-called homebanking to internet. Systems, however, have some shortcomings : isn't uniform authorization and safeguard for individual banks, various banks support various systems, in one system it is impossible watch all amounts of all pool. At communication with more bank are concrete information in three or more system, from which every has other operating.

Important is verification near financial operations. New modern companie´s payment system should be imposed with volume operation in order of several of thousands orders monthly, that would have interlock possibility of attendance for either system bank's account with different pool, automatically, or semi-automatic working, uniform attached to information system firm regardless of concrete banks, simple trust enlargement system about access next banks. Basic advantage of the solution come through. There will never be any needs to edit data format or moduli right in information system for attached of other banks.

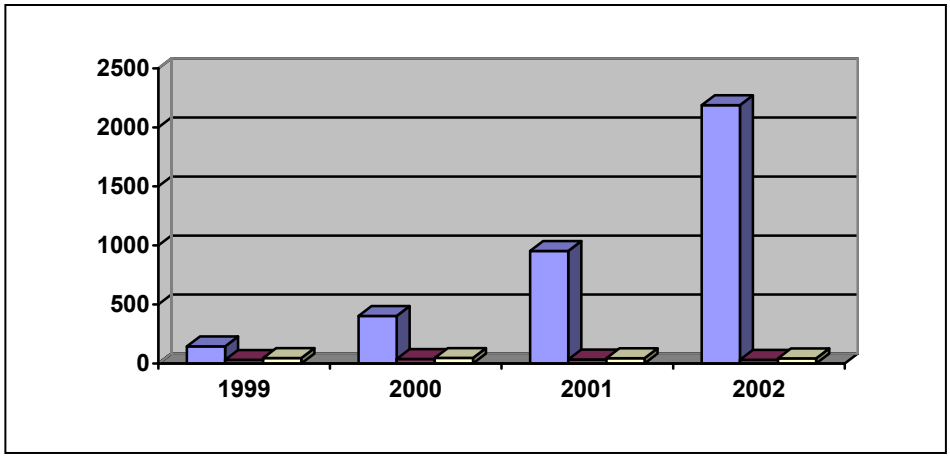
4. New Bank Strategy

Development come on and in the marketplace appear new banks, which quite exploited new forms of electronic banking without branches. These banks are succeed only if focus on selected market segment, characteristically preference electronic communication.

Key to bank's survival in company information technology and communication is to accept matter, that for palette of services and product isn't extension necessary, because attendance client takes place over channels of distribution. The aim of banks is not only to introduce electronic banking, but to increase standard of service for client accompanied with cost reduction.

In German speaking countries got in electronic traffic furthest in Europe and will all the time evolve.

Figure 1 - electronic traffic abroad (bil.USD)



Source: Author´s calculations.

Czech banking begins to use benefit from the same forms of electronic banking as his neighbours in Germany and the growth rate will be quick. It will be dependant on household equipment computer and Internet charges.

At present Czech bank's sector has released a new way of communication with client and begins to offer client operating their acconts „at a distance", see Table 1.

Table 1 - Managing of bank account at a distance for individuals (thousousd of CZK)

Bank	*2001*	*2002*	*To September 2003*
ČS	***457***	***407***	***616***
ČSOB	***258***	***445***	***612***
GE Capital bank	***229***	***392***	***596***
KB	***220***	***347***	***462(does not offer GSM Banking]***
eBanka	***101***	***158***	***173***

Source: Bank reports.

5. Conslusion

In the area of new communication facilities it is possible to expect next stormy expansion of bank services coming over internet. We can expect convergency techniques mobile phone and personal digital assistent. There will appear a number of

arrangement joinable to internet. There will be new caregory of domestic system, which arise from fusion current audiovisual arrangement with communications system appendant to internet. Software necessary to prosecution of specific application replaced from nets automatically according to needs, so that for communication with banks will not constitute any technical problem. Electronic banking change bank's market and meaning of extension networks notably drop, but without fail will never disappear.

Abstract

Příspěvek se zabývá problematikou změny přístupu bank ke klientovi v důsledku zavádění nových IT.
Nově využívané informační technologie zcela změnily přístup ke klientovi, konkurenční boj mezi bankami, ale i nabídku produktů. Dá se konstatovat, že zcela ovlivnily činnost a řízení bank. Banky začaly využívat nové distribuční kanály a to nejenom pro fyzické osoby, ale i pro právnické osoby. Nabízejí nové typy produktů, které jsou pro klienty na vyšší kvalitativní úrovni, s nižšími náklady a šetří klientovi čas, tím se banky snaží o získání nových klientů, nebo o přetáhnutí klientů z konkurenční banky.
V důsledku zavádění a využití nových multikanálových řešení se objevily názory, že pobočky bank přestanou existovat a zcela zaniknou. Bylo však zjištěno, že pobočky bank nezaniknou, ale změní svůj charakter a přístup ke klientům.

References

[1] DUBSKÁ, D. Technologické změny ovlivňují finanční služby.

[2] Group of Ten / Electronic Money, *Report of the workong party on electronic money*, April 1997.

[3] *Report to the Council of The European Monetary Institute on Prepaid Cards bz The Workong Group on EU Payment Systems*, Frankufurt am Main: EMI, 1998.

[4] *Report on Elektronic Money, European Central Bank*, Frankufurt am Main, August 1998.

EUROPEAN UNION DIRECT PAYMENTS TO THE FARMERS OF LATVIA

Zhanna Svarinska

Key words

common agricultural policy, organization of single market, direct payments, Simplified Scheme of administration, European Agriculture Guidance and Guarantee Fund, financial envelope, Rural Development Plan, co-financing, national budget

1. Introduction

Latvia was invited to the European Union accession negotiations at the end of 1999 during the Helsinki EU Council and assumed the negotiations at the beginning of year 2000. After two years of intensive work fighting for the best possible conditions for the accession of Latvia to the EU, Latvia officially concluded the EU accession negotiations on 13 December 2002 in Copenhagen during the meeting of the EU Council.

The EU accession negotiations officially consisted of 29 chapters, the 7th of which titled "Agriculture" was devoted to agricultural issues. Latvia submitted its position on the chapter "Agriculture" in year 2000. It was elaborated based on the following principles:

- successful development of the agriculture sector of Latvia in the single economic space of the European Union on equal grounds;
- adequacy of the production level to meeting the needs of the domestic market;
- effective use of the agricultural lands of the rural areas of Latvia in production and sustaining the rural environment;
- sustaining of the rural population density, promoting the re-qualifying of the labour leaving agriculture for the work in the non-agriculture areas.

One of the priorities of Latvia during this chapter of the accession negotiations was to achieve the most possible advantageous conditions regarding the direct payments in Latvia. It should not be neglected that the agriculture chapter was of particular interest to the Latvian society as the financial aid available to the agriculture of Latvia in the period after the EU accession was mainly dependent on this chapter of the negotiations.

The Author's assessments are based on the information included in the final documents of the negotiations as well as the calculations made by her given that

- Latvia will be able to implement all the resolutions it has made during the accession negotiations and follow from the EU legislation;

- Latvia will be willing to use the possibilities of the financial aid to agriculture and rural development offered by the conditions agreed on during the accession negotiations.

The reference and quantitative indicators of the direct payments are summarized in table 1 (based on the data on the implementation of the SAPARD support projects provided as to 15 January 2003 by the Rural Support Service).

Table 1 - Agreement of the European Union and Latvia on the reference and quantitative indicators of the direct payments compared to the initial offer and the one required by Latvia

Branch	Indicator	Unit	Latvia's position (LP)	Initial EU offer	Agreed between the EU and Latvia (EULV)	EULV/ LP %
Arable crops	Basic area	ha	688,000	484,700	**443,580**	64%
	Basic yield	t/ha	3.00	2.03	**2.50**	83%
	Special beef premium	Number of premia	75,000	70,200	**70,200**	94%
	Suckler cow premium	Number of premia	25,000	2,100	**19,368**	77%
	Slaughter premium	Number of premia	145,000	124,320	**124,320**	86%
	Veal (1-7 months) slaughter premium	Number of premia	75,000	53,280	**53,280**	71%
	Extensification premium	Number of premia	100,000	72,320	**89,568**	90%
	Complimentary payments	LVL	3,500,000	1,330,680	**1,330,680**	38%
Sheep	Sheep premium	Number of premia	50,000	18,400	**18,400**	37%
	Complimentary payments	LVL	19,000	19,000	**19,000**	100%

Source: Author´s calculations.

2. Direct Payments on Arable Crops

As we can see in the table, in the period after the EU accession the basic national area of arable crops of Latvia (reference area) on which it will be possible to receive one of the main forms of the EU financial assistance in agriculture – the arable crop payments starting from 2004 will be 444 580 ha that represents 36% less than

Latvia was asking for in its position document (688,000 ha). According to the data of the Central Bureau of Statistics and provisional agriculture census there was about 454 500 ha of field crop areas in Latvia in 2002. Latvia motivated its position with the future potential of the arable crop sector, however, unfortunately the European Commission did not take that in account and set its preposition based on the data of the Eurostat.

Another very important indicator influencing the potential available amount of support in the arable crops sector is the reference or basic yield. As it can be seen in the table, the basic yield set for Latvia is 2.5 tonnes per hectare that is 17% less than in the position document.

The size of the basic yield is important due to the fact that in the sector of arable crops the financial aid is set as a direct payment for the production of one tonne cereals that is compensated based on the hectares sowed. It can be concluded that the bigger is the basic yield the bigger will be the direct payment on arable crops per hectare. Taking into account the basic yield set we can calculate that in the period after the accession the farmers of Latvia will be paid 157.5 EUR per hectare of the areas under arable crops (63 EUR × 2.5 t/ha, where 63 EUR per tonne – the basic payments on arable crops set by the EU) sowed with cereals, oil plants, flax and hemp. However, the legume planters will receive more – 181.3 EUR per hectare (72.5 EUR × 2.5 t/ha, where 72.5 EUR per tonne is the basic payment set by the EU on legumes). To compare, now Latvia pays national subsidies of 15 LVL per hectare of the arable land that is about 6.5 times less than it will be possible to receive when farming in the European Union.

When knowing the basic yield and area of arable plants it is possible to calculate the total amount of money (financial envelope) that will be available to the planters of arable crops in the period after the EU accession. The formula for the calculation of the financial envelope on arable crops (LFA) is as follows:

LFA = 63 EUR × basic area × basic yield + 72.5 EUR × legume area × legume yield

In the case of Latvia the sum equals 69,863,850 EUR per year (63 EUR × 443,580 ha × 2,5 t/ha).

Based on the calculations made we can conclude that in the period after the accession the planters of arable crops of Latvia will annually be able to receive maximum of 69,863,850 EUR from the EU budget with the condition that all terms for receiving the support are observed. In case in the period after the accession the farmers will sow and apply for the support with less area that is set as the basic area of arable crops of Latvia, for example 400000 ha, then the aid received from the EU budget will also be received for 400,000 ha (63 EUR × 400,000 ha × 2,5 t/ha = 63,000,000 EUR). However, if the farmers will sow and apply for the support with more than has been set as the basic area for arable crops of Latvia, for example, 500,000 ha, then according to the provisions of the secondary legislation of the EU they will be entitled to receive the financial support for 500,000 ha, however with a proportionally reduced rate per hectare in order not to exceed the financial envelope of payments assigned for Latvia.

3. Beef and Sheep Direct Payments (Premia)

In the beef and sheep sector that is the second most significant sector the principles of allocating the support are different however the basic or reference indicators have a similar role. The basic indicators on animals similarly as the basic area in the case of payments for arable crops set the limits for every member state for receiving the premia on the cattle. In the case of cattle compensation payments the basic indicators show the guaranteed number of animals for which it will be possible to receive the EU financial support.

As we can see in table 1 in the period after the EU accession the number of cattle guaranteed by the special premia for Latvia will account for 70 200 animals annually, which is only about 6% less that it was requested in the postion document. According to the statistics in Latvia in 2002 there were only about 20,000 bulls and steers on which the owners would be entitled to receive the special premia on cattle.

It will be possible to receive the premia for slaughter in Latvia for maximum 124320 mature beef per year and 53280 veal per year. According to statistics, in 2002 about 70,000 mature beef and 28,600 veal were slaughtered in Latvia. Also in the case of this scheme of premia the number of animals requested in the position document of Latvia is only slightly bigger than the one agreed on in the accession negotiations.

Latvia has succeeded unbelievably in the negotiations regarding the guaranteed number of animals entitled for the suckler cow premia. In the position document Latvia was asking for 25,000 animals, however the initial basic number offered by the European Commission (2,100 beef) was more than 10 times less than the one requested by Latvia. There was not this huge a reduction to any other member state. The EU allocated such a huge reduction based on the statistics submitted by Latvia itself and the Author believes that in this case the only ones to be blamed are the responsible officials at the Ministry of Agriculture who had unprofessionally (disadvantageously for Latvia) understood the term “suckler cow”. Later in the negotiations, however, the Latvian party succeeded in persuading the representatives of the initial misunderstanding and finally the parties agreed on a very advantageous number of animals for Latvia – 19 368 animals entitled for the premium on the suckling cows.

What regards the sheep premia, the position of Latvia was the most optimistic. Instead of the requested 50 000 sheep the European Commission had assigned 18,437 sheep for Latvia. According to the statistics in 2002 there were only 12 000 sheep in Latvia entitled for this premium.

When assessing the general basic amounts requested by Latvia and the results of the accession negotiations we have to conclude that almost in all positions the claims of Latvia had been unreasonably high and unreal. However, unlike the payment scheme on arable plants, Latvia has rather successfully motivated its position with the future potential of the cattle breeding in Latvia. All together the Author assesses the negotiation results of Latvia in this chapter as financially advantageous for the development of cattle breeding.

Given the basic (reference) number of animals entitled for the EU budget resources it is possible to calculate the financial envelopes for every scheme of cattle premia that will be available to the cattle breeders of Latvia in the period after the EU accession. The formula for the calculation of the financial ***envelopes of cattle premia***

MFA = amount of the premiun × the number of animals set for a member state that are entitled for the premia

(MFA) is as follows:

In the case of Latvia the financial envelopes are as follows*:*

- special premium on beef – 14,742,000 EUR (210 EUR × 70,200);
- beef slaughter premium: a) mature cattle – 9,945,600 EUR (80 EUR × 124,320); b) veal– 2,664,000 EUR (50 EUR × 53,280);
- suckler cow premia – 3,873,600 EUR (200 EUR × 19,368);
- extensification premia – 8,956,800 EUR (100 EUR × 89,568);
- complimentary payments for cattle – 1,330,680 EUR;
- sheep premia – 386,400 EUR (21 EUR × 18,400);
- complimentary payments for sheep– 19,000 EUR.

All financial envelopes allocated for the cattle premia total at 41,918,080 EUR per year. Based on the calculations made we can conclude that in the period after the EU accession the sheep breeders of Latvia will be able to receive maximum 41,918,080 EUR from the EU budget in the form of the direct payments annually with the condition that all the terms for receiving the support are observed. In case if the farmers of Latvia grow and apply for the support with less than the number of beef and sheep set as the basic number for Latvia the support will received from the EU on the actual number of animals. However, if in the period after the accession the farmers grow and apply for the support more than the basic reference number of animals set for Latvia then according to the respective EU secondary legislation they will be able to receive the financial support for the actual number of animals, however at a proportionally reduced rate per animal in order not to exceed the financial envelope allocated as the cattle premia for Latvia.

The financial support allocated for the planters of arable crops and for the cattle breeders totals at 111,781,930 EUR annually for the direct payments of the agriculture of Latvia. All the above-mentioned calculations are summed up in table 2.

Table 2 - EU guaranteed annual amounts of the financial aid to Latvia at the 100% EU-15 level

Form of the EU financial aid	Unit	Quantitative indicators guaranteed by the EU	Amount of the premium per unit, EUR	Amount of the financial aid according to the quantitative indicators guaranteed by the EU, EUR
Payments on arable crops	ha	443,580	157,50	69,863,850
Financial envelope for arable crops	**1**	**X**	**X**	**69,863,850**
Slaughter premium:	X	X	X	X
mature cattle	piece	124,320	80	9,945,600
veal	piece	53,280	50	2,664,000
Special premium	piece	70,200	210	14,742,000
Suckler cow premium	piece	19,368	200	3,873,600
Extensification premium	piece	89,568	100	8,956,800
Complimentary payments (on beef)	EUR	X	1,330,680	1,330,680
Financial envelope for beef	**EUR**	**X**	**X**	**41,512,680**
Sheep premium	piece	18,400	21	386,400
Complimentary payments (on sheep)	EUR	X	19,000	19,000
Financial envelope for sheep	**EUR**	**X**	**X**	**405,400**
TOTAL FINANCIAL ENVELOPE	**EUR**	**X**	**X**	**111,781,930**

Source: Author´s calculations.

Column 4 of the table shows what the direct payment rates would be like if right after the accession of Latvia in 2004 the payments to the country were implemented fully according to the secondary EU legislation in member states.

One of the priorities of Latvia in the negotiations with the EU was not only to achieve maximally advantageous basic indicators of the direct payments, but also to achieve the same direct payment financing conditions as in the present member states. In the official negotiation positions on agriculture chapter all applicant countries, including Latvia, requested after the accession to have direct payments to their farmers at the same extent as to the EU farmers. The problem to what amount and in what way the direct payments should be allocated to the new member states after their accession was of outstanding importance for the defining of the EU position on the agriculture chapter of the negotiations.

During the negotiations the EU phrased its position for several times after careful consideration of all aspects of the problem. In defining its position regarding the direct payments to the new member states in the transition period the EU took the following considerations in the account:

- if the direct payments are too early in the new member states then their short-term positive effect upon the farm incomes will as big as the negative effect on

the restucturization. There is a significant risk that the necessary restructurization will slow down or stop at all, causing continuous vicious circle of low productivity, low standards and high hidden unemployment;

- the restructurization problem in the applicant states is closely connected with the dualism of the agriculture structures of these states. On the one hand the commercial sector needs investments and restructurization. On the other hand natural economy farms continue to play a significant social security network in the rural areas. However, a part of the natural economy sector can change and integrate in market economy;

- big amounts of the direct payments will most likely make the existing structures consolidate in time when rapid restucturization is taking place. Particularly in semi-natural economy farms the high level of direct payments will strengthen production for their own consumption and develop its survivability. There will be no willingness to invest the aid into production or alternative activities, in all cases these aims will be easier to reach with the help of the rural development programmes;

- finally, excessive injections of cash through direct payments aimed at particular segments (arable plants and cattle breeding sectors) of one professional group can cause significant differences in the incomes as well as social distortions among the rural inhabitants of the new member states (as there are significant differences in land properties), as well as between the rural and urban inhabitants.

Taking into account the above-mentioned considerations the European Commission could not meet the request of the applicant countries to allocate the direct payments at the moment of accession at the same extent as to the existing EU member states. It was decided that the new member states must introduce the direct payments gradually during the transition period (from 2004 till 2013) simultaneously providing intensive support to restructurization (from the Structural Funds of the EU) particularly through the rural development measures. The need for such a period was motivated with the need to ensure even integration of the applicant states in the Common Agricultural Policy while maximally facilitating their abilities to change their agriculture sectors.

To provide that the size of the direct support to the new member states during the period of transition stays proportionate in relation to the level in the existing EU member states, it was decided to express it in the percentage steps thus avoiding partial future decisions regarding the CAP and EU funding.

At the conclusion of the accession negotiations it was agreed that the direct payments would be introduced in the new member states in two phases. During the first phase the direct payments will have to be introduced respectively: in 2004 – 25%, in 2005 – 30% and in 2006 – 35% of the existing system. In the second phase after 2006 the direct payments are increased annually by 10% - by percentage steps, in 2013 thus reaching the same support rates as in the 15 old member states. However the EU has given the right to the new member states to increase the reduced direct payments with

complementary national payments. In the period from 2004 to 2006 the complimentary national payments can be funded both from the funds allocated for the rural development as well as national budget. Starting from 2007 the complimentary payments will be allowed to be funded solely from the national budget. The schedule for the gradual introduction of the direct payments in the new member states from 2004 to 2013 can be seen in table 3.

Table 3 - The feasible schedule for gradual introduction of the direct payments in the new member states from 2004 to 2013

	Gradual increase of the level of direct payments (% of EU-15 level)	**Right to extend complimentary payments from the national budget)**	**Right to extend complimentary payments from the funding allocated for the rural development**	**Total feasible funding (% of EU-15 level)**
2004	25 %	15 %	15 %	55 %
2005	30 %	20 %	10 %	60 %
2006	35 %	25 %	5 %	65 %
2007	40 %	30 %	-	70 %
2008	50 %	30 %	-	80 %
2009	60 %	30 %	-	90 %
2010	70 %	30 %	-	100 %
2011	80 %	20 %	-	100 %
2012	90 %	10 %	-	100 %

Source: Author´s calculations.

As we can see in table 3, from 2004 to 2006 direct payments can be made from three sources: a) the allocations for direct payments in the ES budget; b) the Rural Development Fund financed jointly by the EU and Latvia; c) from the national budget. However, as from 2007 till 2013 only from two sources: a) the allocations for direct payments in the ES budget; b) from the national budget.

Only if so decided by the government of Latvia in 2004 the farmers of the country will be able to receive the direct payments at maximum of 55% of the ones applicable in the EU-15. If the government of Latvia does not find the necessary funds in the national budget, then the direct payments will account for maximum 40% thus decreasing the funding allocated by the EU for the rural development by the respective amount of the increase of the level of direct payments. Considering the provisions of the EU secondary legislation we must remember that from the rural development funding allocated for Latvia the resources of the EU budget will represent 80%, however the rest 20% will have to be covered by Latvia from the resources of the national budget. Complimentary funding from the resources allocated for the rural development will be allowed to use only following the resolution of the government of Latvia. Such complimentary national payments for increasing the direct payments can require

significant resources from the national budget. According to the Author, it is not correct to promise farmers already today the 55% level of direct payments in 2004 until the official position of the government is not known on the issue. Given the insufficiency of the current national budget and the government policy farmers might as well not receive the promised 55% level of support next year.

Given that the government of Latvia will still decide to increase the level of direct payments from the national budget and the EU guaranteed funding for the rural development we can calculate the particular funding that will in fact be able for the agriculture of Latvia in 2004. If we know the guaranteed funding, the question arises how much of the EU budget resources the farmers of Latvia will actually be able to use. Therefore it is important to compare the guaranteed amounts of funding with the real ability to use them based on the respective data for the previous years.

The following assumptions have been made when carrying out the calculations:

- the rates of the direct payments at 55% of the current EU-15 level;
- agriculture statistics of 2002 can be related to the factual situation of 2004;
- all conditions for receiving the support are fully observed.

The calculations are summed up in Table 4.

Table 4 - Amounts of the EU financial aid and the ability of Latvia to use them in 2004

FORM OF THE EU FINANCIAL AID	Unit	EU guaranteed quantitative indicators	LR quantitative indicators, statistics as to 2002	**100%** premium per unit, **EUR**	**55%** financial support, according to the EU guaranteed quantitative indicators, **EUR**	**55%** financial support, according to the EU guaranteed quantitative indicators, **LVL**	**55%** financial support according to statistics of 2002, **LVL**	Difference between the EU guaranteed amount of support and ability of Latvia to use it, **LVL** (55%)	**55%** premia lielums per unit, **LVL**
Arable crop payments	ha	443,580	454,500	157.5	38,425,118	24,034,911	24,626,600	- 591,689	54.18
Financial envelope for arable crops	**2 LVL**	**3 X**	**X**	**X**	**38,425,118**	**24,034,911**	**24,626,600**	**- 591,689**	**X**
Slaughter premium	X	X	X	X	X	X	X	X	X
mature cattle	piece	124,320	70,000	80	5,470,080	3,421,535	1,926,540	1,494,995	27.52
veal	piece	53,280	28,600	50	1,465,200	916,483	491,956	424,527	17.20
Special premium	piece	70,200	20,000	210	8,108,100	5,071,617	1,444,905	3,626,712	72.25
Suckler cow premium	piece	19,368	1,701	200	2,130,480	1,332,615	117,037	1,215,578	68.81
Extensification premium	piece	89,68	21,701	100	4,926,240	3,081,363	746,569	2,334,794	34 40

Complimentary payments (on beef)	LVL	X	X	1,330,680	731,874	457,787	457,787	0	X
Financial envelope for beef	**4 LVL**	**5 X**	**X**	**X**	**22,831,974**	**14,281,400**	**5,184,794**	**9,096,606**	**X**
Sheep premium	piece	18,400	12,000	21	212,520	132,931	86,694	46,237	7.22
Complimentary payments (on sheep)	LVL	X	X	19,000	10,450	6,536	6,536	0	X
Financial envelope for sheep	**6 LVL**	**X**	**X**	**X**	**222, 970**	**139,467**	**93,230**	**46,237**	**X**
TOTAL FINANCIAL ENVELOPE	**7 LVL**	**X**	**X**	**X**	**61,480,062**	**38,455,778**	**29,904,624**	**8,551,154**	**X**

Calculations from EUR into LVL are made based on the average exchange rate in 2003 - 1 EUR = 0.6255 LVL (conditionally).

As we can see from the results of the calculations in 2004 about 38.46 million LVL have been guaranteed for Latvia from the EU budget and national budget for the implementation of the direct payments (on arable crops and cattle). However, based on the actual agriculture production data the farmers of Latvia could be able to use only about 29.90 million LVL, that is 8.56 million LVL less (23%).

The reserves for receiving the financial support basically relate only to the beef sector where about 9.1 mln LVL could be left unused. However, the arable crops sector is forecast to exceed the EU guaranteed financial envelope by about 0.59 million LVL. This means that in such a case the arable crop planters will received a proportionally reduced rate for a hectare of the arable land under crops in order not to exceed the financial envelope allocated for the arable crops.

Given that the government of Latvia will decide to increase the level of the direct payments from the national budget and the EU guaranteed funding for the rural development also in the further years, knowing what envelope of direct payments would be due to the agriculture of Latvia at the 100% extent of the EU-15 level (table 2), and taking into account the feasible schedule of gradual introduction of the direct payments set for the new member states (table 3), we can calculate namely what amount of resources will be guaranteed for the farmers of Latvia from year 2004 to year 2013. The results of the calculations are presented in table 5.

Table 5 - The financial envelope of the direct payments for Latvia (DP) and the division of sources for its funding from 2004 to 2013 as follows from the results of the accession negotiations, thousand EUR

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Financial envelope of DP calculated for Latvia at 55% extent of EU-15 DP 100% level, total									
61,480	67,069	72,658	78,247	89,425	100,04	111,782	111,782	111,782	111,782
Amount of DP allocated from the EU									
27,945	33,535	39,124	44,712	55,890	67,069	78,247	89,426	100,604	111,782
8 DP FROM THE NATIONAL BUDGET									
16,767	22,356	27,945	33,535	33,535	33,535	33,535	22,356	11,178	-
DP from the rural development funding,									
16,767	11,178	5,589	**-**	**-**	**-**	**-**	**-**	**-**	**-**
including:									
EU co-funding 80%									
13,414	8,942	4.471							
National budget 20%									
3.353	2.236	1.118							

Source: Author´s calculations.

From the calculations we can see that in 2004 according to the 55% scenario, the farers of Latvia are guaranteed the financial envelope of direct payments accounting for 61.5 mln EUR about 20 mln EUR of which (16,767 + 3,353) are

accounted for the amount of DP from the national budget. This means that this amount should be earmarked for the direct payments when composing the national budget of the coming year.

The table also shows that when implementing the complimentary national payments to full extent the 100% level of the EU-15 will be achieved already in 2010. If the complimentary national payments are not made the 100% EU-15 level will be achieved only in 2013. However, according to the Author, taking into account the new regulations of the EU Common Agricultural Policy providing for a matter-of-fact reduction of the rates of DP after 2006 the farmers of Latvia will receive less DP than the one presented in table 5 and the later the EU-15 level is reached the longer the farmers of Latvia will be less competitive in the internal market of the EU. In this case the issue of the willingness and ability of the government of Latvia to provide for the DP complimentary payments from the national budget gains particular topicality.

According to the Author, it would be useful for the government to assess the following additional possibilities for providing the co-funding to the DP as well as for increasing the competitiveness of the agriculture of Latvia:

- implement earmarked national long-term and middle-term domestic borrowing for ensuring the DP for the agriculture of Latvia. Unlike the existing domestic borrowing of Latvia this loan could be placed in the form of bonds among natural and legal persons. In this case the placement of bonds should take place through commercial banks selected by the state in a tender;

- allow municipalities to make earmarked borrowing for the ensuring DP for the agriculture of Latvia. Thus the taxes collected from the agricultural activity in the respective municipality will serve as a source for repaying the loans and interest. According to its own decision, the municipality will be able to draw a contract with a selected commercial bank on the placement of the borrowing or do it on its own;

- found a state commercial bank the main task of which will be attraction of foreign loans and their placement for the development of the economy of Latvia (foreign money resources are cheaper than local ones), including the issuing of loans to the agriculture of Latvia at lower interest rates. The state commercial banks could use the real estate of farms and rural companies as a collateral (the prices of land are steadily growing). In this case the state commercial bank will act as a competitor of the private commercial banks that will cause reduction of the interest rates as well as more active crediting of the agricultural activity and promote the competitiveness of the Latvian agriculture in the EU single market.

4. Conclusion

Latvia was invited to the European Union accession negotiations at the end of 1999 during the Helsinki EU Council and assumed the negotiations at the beginning of year 2000. After two years of intensive work fighting for the best possible conditions

for the accession of Latvia to the EU, Latvia officially concluded the EU accession negotiations on 13 December 2002 in Copenhagen during the meeting of the EU Council.

Latvia submitted its position on the chapter "Agriculture" in year 2000.

One of the priorities of Latvia during this chapter of the accession negotiations was to achieve the most possible advantageous conditions regarding the direct payments in Latvia. It should not be neglected that the agriculture chapter was of particular interest to the Latvian society as the financial aid available to the agriculture of Latvia in the period after the EU accession was mainly dependent on this chapter of the negotiations.

The author's assessments are based on the information included in the final documents of the negotiations as well as the calculations made by her given that Latvia will be able to implement all the resolutions it has made during the accession negotiations and follow from the EU legislation.

Latvia will be willing to use the possibilities of the financial aid to agriculture and rural development offered by the conditions agreed on during the accession negotiations.

Based on the calculations made we can conclude that the financial support allocated for the planters of arable crops and for the cattle breeders totals at 111,781,930 EUR annually for the direct payments of the agriculture of Latvia. All the above-mentioned are true if direct payments to our farmers will be at the same extent as to the EU farmers.

At the conclusion of the accession negotiations it was agreed that the direct payments would be introduced in the new member states in two phases. During the first phase the direct payments will have to be introduced respectively: in 2004 – 25%, in 2005 – 30% and in 2006 – 35% of the existing system. In the second phase after 2006 the direct payments are increased annually by 10% - by percentage steps, in 2013 thus reaching the same support rates as in the 15 old member states. However the EU has given the right to the new member states to increase the reduced direct payments with complementary national payments. In the period from 2004 to 2006 the complimentary national payments can be funded both from the funds allocated for the rural development as well as national budget. Starting from 2007 the complimentary payments will be allowed to be funded solely from the national budget. From 2004 to 2006 direct payments can be made from three sources: a) the allocations for direct payments in the ES budget; b) the Rural Development Fund financed jointly by the EU and Latvia; c) from the national budget. However, as from 2007 till 2013 only from two sources: a) the allocations for direct payments in the ES budget; b) from the national budget.

Only if so decided by the government of Latvia in 2004 the farmers of the country will be able to receive the direct payments at maximum of 55% of the ones applicable in the EU-15. If the government of Latvia does not find the necessary funds in the national budget, then the direct payments will account for maximum 40% thus decreasing the funding allocated by the EU for the rural development by the respective

amount of the increase of the level of direct payments. Considering the provisions of the EU secondary legislation we must remember that from the rural development funding allocated for Latvia the resources of the EU budget will represent 80%, however the rest 20% will have to be covered by Latvia from the resources of the national budget. Complimentary funding from the resources allocated for the rural development will be allowed to use only following the resolution of the government of Latvia. Such complimentary national payments for increasing the direct payments can require significant resources from the national budget. According to the Author, it is not correct to promise farmers already today the 55% level of direct payments in 2004 until the official position of the government is not known on the issue. Given the insufficiency of the current national budget and the government policy farmers might as well not receive the promised 55% level of support next year.

According to the author, it would be useful for the government to assess the following additional possibilities for providing the co-funding to the DP as well as for increasing the competitiveness of the agriculture of Latvia:

- implement earmarked national long-term and middle term domestic borrowing for ensuring the DP for the agriculture of Latvia. Unlike the existing domestic borrowing of Latvia this loan could be placed in the form of bonds among natural and legal persons. In this case the placement of bonds should take place through commercial banks selected by the state in a tender;

- allow municipalities to make earmarked borrowing for the ensuring DP for the agriculture of Latvia. Thus the taxes collected from the agricultural activity in the respective municipality will serve as a source for repaying the loans and interest. According to its own decision, the municipality will be able to draw a contract with a selected commercial bank on the placement of the borrowing or do it on its own;

- found a state commercial bank the main task of which will be attraction of foreign loans and their placement for the development of the economy of Latvia (foreign money resources are cheaper than local ones), including the issuing of loans to the agriculture of Latvia at lower interest rates. The state commercial banks could use the real estate of farms and rural companies as a collateral (the prices of land are steadily growing). In this case the state commercial bank will act as a competitor of the private commercial banks that will cause reduction of the interest rates as well as more active crediting of the agricultural activity and promote the competitiveness of the Latvian agriculture in the EU single market.

Abstract

V současnosti se stává přímá finanční podpora nebo přímé dotace organizacím jednotného trhu při agrární politice EU jednou z hlavních forem finanční podpory aktivit zemědělců zemí EU. Alokace přímých dotací je založena na stanovení maximální částky ustanovené pro každou zemi a je založená na množství různých doporučení a na kvantitativních indikátorech.

Specifikace těchto indikátorů byla jednou z priorit v kapitole zemědělství při vyjednávání o připojení Litvy k EU, jelikož velikost finanční podpory EU po vstupu země záleží zejména na těchto indikátorech. Nyní, když vyjedávání o vstupu do EU byla oficiálně ukončena, je možné stanovit jakou jednotlivou přímou finanční dotaci budou litevští zemědělci moci obdržet a jak tento krok ovlivní budoucí rozvoj zemědělství v Litvě. Autorovo hodnocení je založeno na informacích zahrnutých v závěrečných dokumentech vyjednávání, stejně tak jako na vlastních výpočtech.

References

[1] Agriculture Development programme 2003. LR Ministry of Agriculture, Riga, 2003.

[2] CĪRULE, V. ES subsīdijas pēc paplašināšanās // Agropols, 2000, pp. 19-20, no. 2.

[3] JASJKO, D., LEOKE E., MIGLAVS, A., SELECKIS, E. Dažas ES KLP pamatpatiesības // Agropols, 2002, no. 4, pp. 1-4.

[4] JASJKO, D., LEOKE, E., MIGLAVS, A., SELECKIS, E. Lauksaimnieku ieņēmumi Eiropā // Agropols, 2002, no.7, pp. 1-5.

[5] KALNA, K. ES struktūrfondi – lauksaimniecībai un laukiem reģionālās politikas ietvaros // Latvija ES // LVAEI publikācijas, Rīga, 2003, no. 4.

[6] Law on Rural Support Service: Law of the Republic of Latvia.

[7] LR Vienotā programmdokumenta projekts, Finanšu ministrija, Rīga, 2003.

[8] MIGLAVS, A. Kā Latvijā maksās tiešmaksājumus // Agropols.-03.03, pp. 1-3.

[9] MIGLAVS, A., JASJKO, D. Kas gaida Latvijas lauksaimniecību iestājoties ES // Agropols, 2002, no. 12, pp. 5-7.

[10] SAKTIŅA, D. Lauku attīstības pasākumi pēc iestāšanās ES // Latvija ES // LVAEI publikācijas, Rīga, 2003, no. 7.

[11] Statistical Yearbook of Latvia 2002. Central Statistical Bureau of Latvia, Riga, 2002.

[12] STEINFELDE, I. Several Agriculture Branches Endangered. – Neatkariga rita avize,14. 2. 2003, daily newspaper, Latvia.

[13] Unpublished materials of the Ministry of Agriculture (in Latvian).

[14] Unpublished materials of the Rural Support Service / http://www.lad.gov.lv.

[15] http://www.agropols.lv
http://www.llkc.lv
http://www.agrarius.lv
http://www.zm.gov.lv
http://www.europa.int.eu

CAPITAL MARKET AND CORPORATE FINANCING

PRIVATE BANKING - TOOL TO INVEST ON CAPITAL MARKET

Mária Klimíková

Ľubomír Garaj

Key words

private banking, investment services, investments consulting, tax consulting, financial market, portfolio management, Slovak banking market,

1. Introduction

Private banking (PB) as specific, progressive and very effective banking activity has a traditional base in foreign well known banks. Private banking is undeniably different from most other types because of the extreme emphasis on *secrecy* and *discretion.*

The search for a general definition of "private banking" is bound to fail, because the many national boundaries are apt to change the shape of the business. In addition, local law in the shape of diverse regulatory environment and organizational regulations puts heavy constraints on the distribution of private banking products and services. However we can use Signer's[1] definition of private banking as a base. In PB the 'human being' is more in the epicenter, thus *'Private banking'* shall be defined as the *provision of focused banking services stressing investments,* where:

- target customers are wealthy private clients, referred to as high-net-worth individuals, with substantial assets or very high income;
- the primary services are investment advisory & portfolio management;
- additional and comprehensive consulting advice is rendered and individual solutions are tailored;
- business is built around personal relationships, trust and discretion, which is ref1ected in the 'service'.

[1]Ehlern, S.: International private banking … Bern; Stutgard; Wien : Haupt, 1997. s. 11

2.1 Demand Side (Clients)

Private clients constitute a relatively small community of individuals who, because of their accumulated capital assets, need a more intensive and personalized form of financial service.

Role of private banking is to fulfill this need. In broad terms, every investor is faced with the same set of critical questions:

- How to provide a secure environment for assets?
- How to achieve an acceptable return on assets?
- How to assure complete confidentiality of financial dealings?

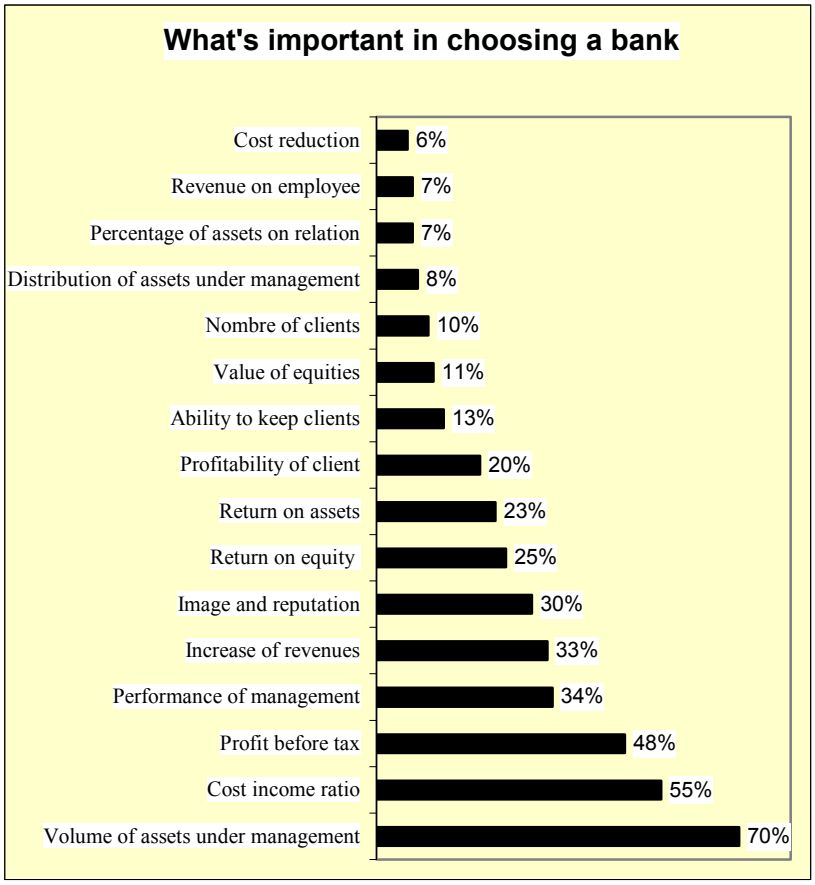
Answers specific to client's situation demand the experience and specialized knowledge that only a team of private bankers can provide. They also demand that investment managers develop a profound understanding of clients as an individual and have a genuine commitment to client's well being. This is why private banking put such emphasis on the development and continuity of a special relationship with private clients.

Many customers (often drawn from the «New Money» sector and sometimes also in the «Old Money» segment) are increasingly more knowledgeable about the subject of asset management. What is more, information that is available without charge and in real time to these customers on the Web is constantly growing. The services of Private Banks therefore make sense primarily if the advisor has the knowledge and logistics needed to generate value that the customer could not create for himself.

This does not just presuppose a specific product offering for customer segments or individual customers, but also calls for increasingly qualified advisors.

In next diagram we can see main factors that influence clients in choosing their bank.

Figure 1 - What´s important in choosing a bank



Source : HERRMANN, S.: La banque privée vue par ses clients, BANQUEmagazine, 1999, no. 606, p. 31.

2.2 Supply Side (Banks)

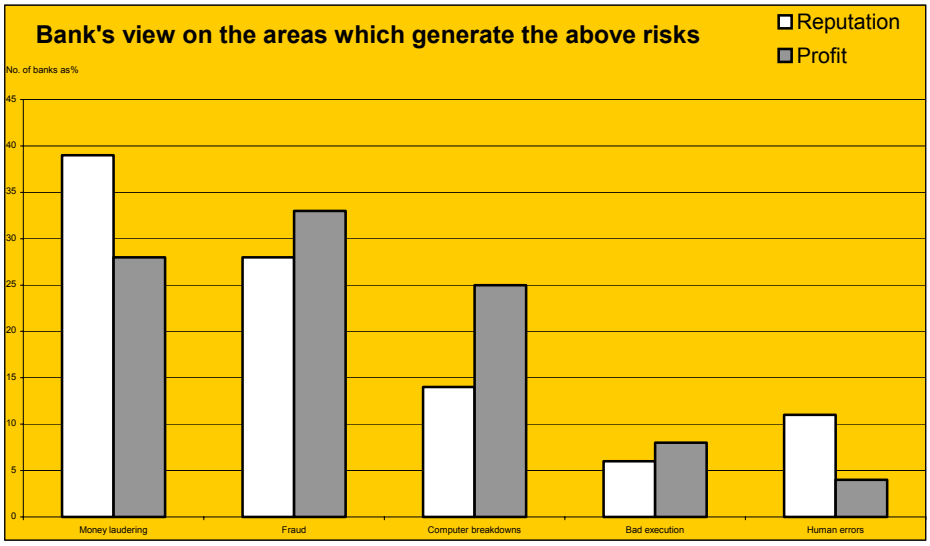
Private Banking is high performance banking activity. The risks, in particular the counterparty/credit risks, are small. The amount of equity tied up therefore remains modest. This brings astonishing ROEs. Because the income is relatively constant and costs hardly vary, the outcomes are not particularly volatile. By comparison with commercial banking or investment banking, Private Banking is a honey pot.

Because of the attractiveness of Private Banking in recent years, the number of service providers has grown massively. Many existing banks and other financial service providers have extended their Private Banking activities. What is more, new providers have made their appearance on the market. This striking in-crease in supply is

bringing pressure on margins. That pressure is heightened by many e-banks and discount brokers, which are sometimes part of existing establishments and sometimes completely new.

In the long run, this trend may lead to a steep reduction in the traditional main sources of income such as commissions, brokerage and expenses. In the not too distant future these may only be margin-ally higher than the costs incurred.

Figure 2 – Bank´s view on the areas which generate the above risks



Source: Best Practices in Private banking 2000.

Private Banking is often perceived as a low risk business. This is true in terms of credit, market and liquidity risk. However, the operational risk is often greatly underestimated, as is confirmed by the «Bank for International Settlements» in its recent publications[2]. In the Ernst & Young survey[3], banks were asked which operational risks in terms of profitability and reputation would have the greatest impact on them. The responses demonstrated that money laundering and fraud are clearly the main operational risks (see Diagram 2). Money laundering is seen as the greatest risk to reputation and fraud as the highest risk to the profitability of the bank. It is therefore imperative for the banks to take the steps necessary to reduce these risks at an early stage.

[2] Fishman, B.F.: Private Banking: The Need For Best Practices, Insight Financial Services, No.3, spring 2001, s. 10
[3] Ibid. s. 10

3. Products

The products and services provided by the Private Banking business principally comprise:

- structured and specialized lending activities;
- trust and fiduciary services;
- banking services;
- investment management;
- private client investment banking.

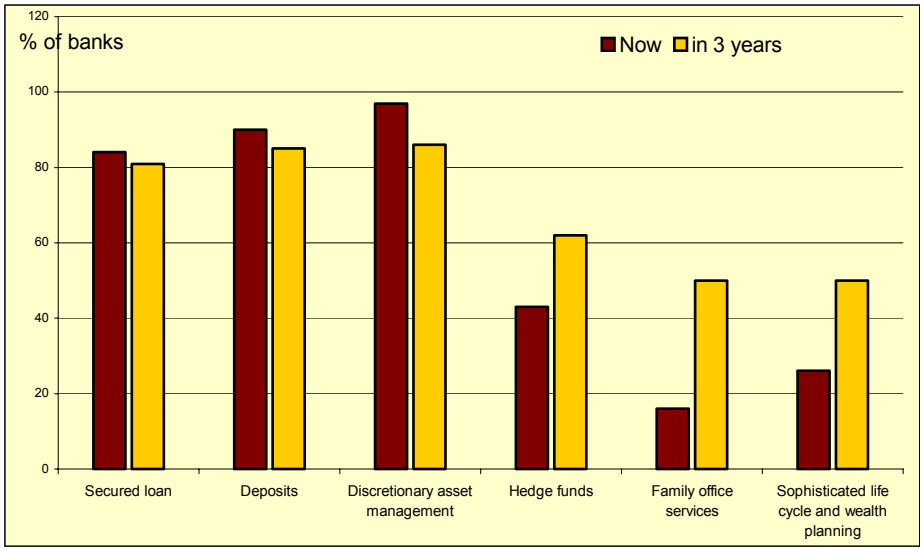
The key problem for the private investor is how to achieve capital growth while minimizing the risks involved. Some investors rely solely on bonds or deposit accounts — yet experience shows that, in the longer term, the value of these investments has tended to fall in real terms because of inflation.

Those investors who are aware of these facts have become more conscious of the increasing complexity of equity investment in recent years. The creation of a successful portfolio now depends on the availability of high quality resources, such as specialist knowledge and up-to-date market information, which are generally beyond the reach of private investors and may not be available locally at all. A popular solution to this problem has been to entrust investment management to a team of full time professionals, private bankers.

Standard products are still important, but the growth is in more sophisticated and value-added products and services, the demand for which varies by different client segments.

Successful players are extending their product range to meet evolving client needs. An increase in more complex, sophisticated products is evident. Products and services will also be more personalized, such as life cycle planning, which will be offered by 50 per cent of respondents in 3 year's time, compared with only 26 per cent now (Figure 3).

Figure 3 - Products offer by private banks today and in 3 years



Source: WOODHOUSE I., WEATHERILL B. European Private Banking/Wealth Management Survey 2000/2001, p.13.

Those serving the private clients are moving towards bundled pricing and more integrated wealth management advisory services. Successful players are focusing on combined service offerings, integrating advice, life/estate planning and specialist products to meet the needs of the different client bands. Increasingly the pricing structure is moving towards bundled pricing based on the overall service package rather than the individual components, particularly as regards traditional asset management and some banking products.

One of the most sophisticated and value adding products of private banking is *state -of-the-art management of client portfolios.* Identification of client needs and their translation into a customized portfolio and targeted servicing are indispensable to a sophisticated portfolio management organization.

Portfolio management is the managing of more or less easily tradable investments (i.e. cash, deposits, securities, precious metals etc.). Portfolio management involves active monitoring and professional decision-making in the best interest of the client's requirements. This type of investment management is usually referred to as 'discretionary management', meaning that the client gives the bank a mandate to act on his behalf - at the client's discretion - without prior consultation.

Portfolio management can either be seen in a narrow sense, as pure 'management' of portfolios or in a wider sense involving financial analysis, investment concept and portfolio construction and management, or even to involve the entire

process of investment decision-making and client assessment. Thus discretionary/advisory portfolio management is a 'product' within the 'portfolio management process' of private banking and reflects the transformation of the clients' investment objectives.

4. Investment Services

Basic Investment Services

- *Deposit accounts* in major currencies in connection with *cheque* or *credit card facilities,* or *fiduciary investments* (e.g. time-deposits).

- Investment funds, respectively *mutual funds* or *investment accounts* with relatively low minimum amounts (e.g. USD 50,000) that invest in top performing foreign or preferably in-house funds.

State -of-the-Art Investment Services

- Investment advisory;
- strategy-based mutual funds;
- index tracking funds;
- strategic asset allocation funds;
- discretionary portfolio management;
- personalized structure products;
- derivate strategies;
- forex trading;
- precious metals dealing.

Private Investment Services

- Services related to investments with which clients have personal tie;
- selling securities;
- diversifying position with derivates.

Tax Consulting

Tax planning can be defined as legal activities suitable to minimize tax liability. This is usually achieved by investing in tax deferred or tax deferred or tax exempt investment.

Investment-based fax planning can be divided into two features. Firstly there is the territorial feature that by pure choice of an offshore banking location, leads to tax optimization and in addition there are special vehicles such as trusts. Secondly there is

the purely *'onshore element'* of tax planning & consulting that is relevant for private clients, as described below.

Real Estate

Apart from indirect investments in real estate with mutual funds, direct investments can offer clients *risk diversification* and attractive returns. The primary purpose of advisory on real estate is not the purchase for own use, but for return enhancement.

Special Purpose Investments

This category of products is usually separated from asset management services, although it also follows the objective of wealth optimization and should be part or an overall planning structure.

- *Company financial ownership* is a structure that enables the client to become a limited financial partner, respectively owner of a company.

- *Private equity investing* is concerned with privately negotiated investments in private, nonlisted, or illiquid securities.

5. Private Banking on the Slovak Market

Until now, the Slovak market doesn't have enough potential to attire well known foreign private banks. They still haven't decided to provide private banking services in Slovakia. By entering the European Union and after few years, positive changes in this area can be expected.

There are several banks in Slovakia that already provide these services based on the know how of their mother or sister companies. Tatra Banka was the first bank on Slovak market which offer services of private banking. Good experiences have also Ludova Banka, VUB or UniBanka, which is only one in Slovakia who provide "Private offices", special commercial place that is dedicated only to private clients. Except for them there are also some nonbank subjects that are operating in the same field. The main difference between these two kinds of players on the Slovak private banking market is the bigger flexibility of the nonbanks and on the other hand conservative attitude of the banks.
Private bankers in Slovakia offer to client theses main forms of investments:

- **Cash**: current account, term deposits; and further the investments on the money market;

- **Shares**: our market is too small for the share dealings, thats why most of the investments aim the Eurozone or another foreign markets;

- **Bonds**: on the contrary mostly Slovak bonds are usually bought, the main reason of which is the tax free coupon;

- **Alternative investments**: mostly hedging products, derivatives.

There's a possibility for the clients to invest directly by buying particular shares. In this case there's a necessity of having sufficient funds and its recommended to diversify the risk. Another possibility is to invest into the mutual funds, which are usually managed by bank's daughter asset management corporation.

6. Conclusion

Private banking as a special bank's service seems to have good future. Especially in emerging countries as in middle Europe private banking has large potential. The Slovak private banking market is growing broader all the time. Its not only the matter of a supply side (nowadays, most of the Slovak banks provide private banking services), its also the side of demand, the clients of the banks. Also the Slovak clients appreciate and by enlarging their wealth, they are seeking for this kind of banking services.

Abstract

Príspevok pojednáva o privátnom bankovníctve ako osobitej forme poskytovania služieb bankovníctva, ktorá je určená najmä klientom s vlastníctvom dostatočne vysokých finančných aktív. Popisuje najprv stranu ponuky, teda klientov a ich očakávania od daného druhu služieb. Následne na to sa zameriava na stranu ponuky a opisuje možnosti a produkty bánk v danej oblasti. Na záver poukazuje na možnosti a veľkosť trhu privátneho bankovníctva na Slovensku.

References

[1] BICKER, L. *Private Banking in Europe*. London: Routhledge, 1996.

[2] EHLERN, S. *International Private Banking*. A Study on International Private Banking with Special Focus on the Portfolio Management Business. Bern, Stutgard, Wien Haupt, 1997.

[3] FISHMAN, B.F. *Private Banking*. The Need for Best Practices, Insight Financial Services, 2001, no. 3, pp. 7-10.

[4] TOBBLER, D. *Private Banking at a Crossroads.* CEO 2/2002, pp. 42 – 43.

[5] WOODHOUSE, I., WEATHERILL, B. *European Private Banking/Wealth Management Survey 2000/2001*.

[6] KLIMIKOVA, M. Slovenské privátne bankovníctvo v procese integrácie. In *Transitívne ekonomiky v procese integrácie*. Bratislava: Ekonomická univerzita, 2003.

[7] GARAJ, Ľ. *La banque privée, Travail de mémoire*. Bratislava: Ekonomická univerzita, 2003.

PRICING OF DISCRETELY SAMPLED LOOKBACK OPTIONS IN PRESENCE OF KURTOSIS AND SKEWNESS[1]

Petr Lichnovský[2]

Tomáš Tichý[3]

Key words

Vanilla option, path-dependent option, lookback call option, discrete path, numerical method, Monte Carlo simulation, Lattice model, Rubinstein Edgeworth tree, skewness, kurtosis, non-Gaussian distribution

1. Introduction

The evidence of departures from Gaussianity goes back to the early work of Fama [8]. In that paper, it has been found that especially short run returns typically display more kurtosis than that permitted under assumption of normality. Also skewness has been found to be prevalent. Other researchers in the late 90´s concluded that the characteristics have changed, going far away of Gaussianity again as deregulation was realized across the world. Clearly, characteristics of returns were also correlated with market crashes e.g. in 80´s and 90´s.

However, the risk neutral approach, first introduced by Black and Scholes [1], to valuing derivatives is still a standard paradigm in finance. Two well-documented biases of the model are volatility smiles and skewness premia. Rubinstein [17], [18] and [19] among others documents an evidence that implied volatilities tend to rise for options that are deeply in- or out-of-the-money. Bates [2], [3] presents evidence of market prices that, relative to call options, put options are underpriced by the Black-Scholes formula that, in turn, suggests that the implied volatility curve is downward slopes in the exercise price. On the one hand, the presence of a volatility smile suggests a risk neutral density with a kurtosis above that of a normal density, on the other, the existence of skewness premia further suggests that the left tail of the return distribution is fatter than the right tail. Theoretically, skewness is a consequence of risk aversion in

[1] The research was partially supported by Czech Grant Agency (GAČR) CEZ: J 17/98: 275100015.

[2] VSB-TU Ostrava, Faculty of economics, Department of Mathematical Methods in Economics, Sokolská 33, 701 21 Ostrava, Czech Republic. E-mail: petr.lichnovsky@vsb.cz.

[3] VSB-TU Ostrava, Faculty of Economics, Department of Finance, Sokolská 33, 701 21 Ostrava, Czech Republic. E-mail: tomas.tichy@vsb.cz.

facing the risks of price jumps that is not addressed in standard pricing models by assumption of continuity. Excess kurtosis is also a result of jumps and is reflected in risk premia on deep in- and out-of-the money options.

During last years, there were presented some models that allow to price an option even if skewness and kurtosis of an underlying asset return distribution differs from Gaussianity, see e.g. Madan *et al* [15]. Unfortunately, if the option pay-off depends on discrete path followed by the underlying asset price during the life of the option, we should use rather discrete model to incorporate relevant set of prices.

While the pay-off of plain vanilla call $\Psi_{call}^{vanilla}$ can be written as $\Psi_{call}^{vanilla} = (S_T - X)^+$, where S_T indicates the underlying asset price at the time of maturity T, X is used for the exercise price and $(\cdot)^+ \equiv \max(\cdot;0)$, the pay-off of any path dependent option will depend also on certain function $f(S_s)$. This function can be defined e.g. as $f(S_s) = \max(S_s)$, $f(S_s) = \min(S_s)$ or $f(S_s) = Ave(S_s)$, with *Ave* used for geometric (or arithmetic) average and s belongs to any interval $\langle 0;T \rangle$ or finite set of dates, $\{t_1, t_2, t_3, \mathrm{K}, t_n = T\}$.

In this paper we study lookback options in more detail, in particular convergence of numerical methods (simulation Monte Carlo, simulation via Lattice model) to analytical results and the effect of non-normality of underlying asset returns (skewness, kurtosis). We proceed as follows. At first we define the lookback option, its pay-off and analytical pricing formula. In subsequent Section we describe numerical methods used to price the option. We look more closely how to price with kurtosis and skewness. Later we present results given by MC simulation and simulation via tree. We also cope with a set of maturities and pre-minimum prices.

2. Lookback Options

This type of financial derivative gives its holder the right to profit from the most favorable price reached during the option life. It means that the pay-off of standard lookback call will be

$$\Psi_{call}^{lookback} = (S_T - \mathrm{m}(S_s)), \tag{1}$$

where $\mathrm{m}(S_s) = \min_{0 \le s \le T} S_s$ with continuous path and $\mathrm{m}(S_s) = \min_{s \in \{0, t_1, t_2, \mathrm{K}, T\}} S_s$ with discrete path.

Similarly, the pay-off of standard lookback put is

$$\Psi_{put}^{lookback} = (\mathrm{M}(S_s) - S_T), \tag{2}$$

with $\mathrm{M}(S_s) = \max_{0 \le s \le T} S_s$ or $\mathrm{M}(S_s) = \max_{s \in \{0, t_1, t_2, \mathrm{K}, T\}} S_s$.

The lookback call was firstly analyzed by Goldman *et al* [10]. They priced this derivative as the standard call plus the expected value of being able to reset the exercise price as lower underlying prices are realized (*sensu largo* similar to special type of barrier option – ratchet option). This second option was further examined by Garman [9] and was coined a **strike bonus** option.

However, in all cases[4] we can find the right price by calculating the value of expected pay-off using risk-neutral probabilities. Hence, denoting the value of the lookback call on *S* at time zero by

$V_{call}^{lookback}(0, S_0)$ we can write

$$V_{call}^{lookback}(0, S_0) = e^{-r \cdot T} E^{Q}\left[S_T - \mathrm{m}(S_s)\right] \tag{3}$$

where *r* is risk-free rate and $E^{Q}[\cdot]$ is used for expectation operator under risk neutral (equivalent martingale) measure. The analytical value of the lookback call option at a general time *t* under Black – Scholes assumptions is therefore given by formula (see Goldman *et al* [10]):

$$\begin{aligned} V_{call}^{lookback}(0, S_t) = {} & S_t \cdot e^{-r_f \cdot \tau} \cdot N(a_1) - S_t \cdot e^{-r_f \cdot \tau} \cdot N(-a_1) \cdot \tfrac{\sigma^2}{2 \cdot (r - r_f)} - \\ & - \mathrm{m}(S_s) \cdot e^{-r \cdot \tau} \cdot \left[N(a_2) - \tfrac{\sigma^2}{2 \cdot (r - r_f)} \cdot e^{y} \cdot N(a_3)\right] \end{aligned} \tag{4}$$

We have used following symbols:

$a_1 = \dfrac{\ln\left(\frac{S_t}{\mathrm{m}(S_s)}\right) + \left(r - r_f + \frac{\sigma^2}{2}\right) \cdot \tau}{\left(\sigma \cdot \sqrt{\tau}\right)}$, $a_2 = \dfrac{\ln\left(\frac{S_t}{\mathrm{m}(S_s)}\right) + \left(r - r_f - \frac{\sigma^2}{2}\right) \cdot \tau}{\left(\sigma \cdot \sqrt{\tau}\right)}$, $a_2 = \dfrac{\ln\left(\frac{S_t}{\mathrm{m}(S_s)}\right) - \left(r - r_f - \frac{\sigma^2}{2}\right) \cdot \tau}{\left(\sigma \cdot \sqrt{\tau}\right)}$,

$y = \dfrac{-2 \cdot \left(r - r_f - \frac{\sigma^2}{2}\right) \cdot \ln\left(\frac{S_t}{\mathrm{m}(S_s)}\right)}{\sigma^2}$, τ is the time to maturity of the option, σ is the underlying asset price volatility, *r* is the continuously compounded risk-free yield, r_f is the yield of the underlying asset and $\mathrm{m}(S_s)$ indicates the minimum price of the underlying asset up to the time *t*.

[4] An alternative method to price the lookback option is based on the method of static replication. According to this method we should use market prices of liquid plain vanilla options. For more details see Carr *et al* [4].

3. Numerical Methods

Any financial derivative can be priced also numerically – e.g. using Monte Carlo simulation, simulation via Lattice model. Generally, there is no reason to use numerical method if we have an analytical formula and all assumptions hold. In practice however, we often have to cope with violation of assumptions (returns are mostly not normally distributed) or an analytical formula does not exist at all. Therefore we need numerical methods to obtain the price of the option.

Monte Carlo (MC) simulation provides a (relatively) simple and flexible method for valuing derivatives with more complicated conditions of pay-off. In case of the Black-Scholes world-view, a fair value for an option is the present value of the option pay-off at maturity under a risk-neutral random process for the underlying prices. Therefore the approach to using simulation to find the fair price of the lookback option is straightforward. For description of the method see standard literature, e.g. [11].

Simulation via tree is not commonly used method to value path dependent derivate, although the results of simulation should be the same. The main problem is that we need a large tree with many steps to acquire a reasonable approximation of geometric Brownian motion. On the other hand higher moments of ending risk-neutral distribution can be more easily obtained. The procedure is similar to Monte Carlo technique. First we have to create binomial tree with given number of steps - N. Next we have to draw N independent numbers from interval (0,1), and go to the next node according to given probability of up and down move.

We will use Rubinstein Edgeworth tree for simulation. This special type of the tree is not difficult for construction and may be easily fit to observed options' prices. An alternative is a generalized binomial tree as proposed by Jackwerth [12], which can be fit not only to options' prices at given maturity, but to all observed options. The Rubinstein tree [19] is based on Edgeworth expansion of standard normal distribution. The function of density is given below:

$$f(x) = g(x)\cdot\left(1 + \frac{\kappa_3}{3!}\cdot\left(x^3 - 3\cdot x\right) + 10\cdot\frac{\kappa_3^{\,2}}{6!}\cdot\left(x^6 - 15\cdot x^4 + 45\cdot x^2 - 15\right) + \frac{\kappa_4 - 3}{4!}\cdot\left(x^4 - 6\cdot x^2 + 3\right)\right) + \varepsilon \tag{5}$$

κ_3 … skewness of risk neutral distribution; κ_4 … kurtosis of risk neutral distribution

A problem of binomial tree is that the sum of probabilities at the nodes is not always equal to one and central moments are slightly in error. We can cope with this problem with following normalization:

$$if \quad \sum_{i=1}^{n} f(x_i) \neq 1, \text{ then } f'(x_i) = \frac{f(x_i)}{\sum_{i=1}^{n} f(x_i)}, \quad \mu_1 = \sum_{i=1}^{n} f'(x_i)\cdot x_i, \quad \kappa_2 = \sum_{i=1}^{n} f'(x_i)\cdot(x_i - \mu_1)^2, \quad x_i' = \frac{x_i - \mu_1}{\kappa_2} \tag{6}$$

Both Figure 1 and Figure 2 show risk neutral density with given parameters, which are usual in stock and foreign exchange market. The corresponding volatility smile for parameters $S_0 = 100$, $r = 0.1$, $r_f = 0$, $\sigma = 0.4$, $t = 1$, is plotted bellow. These patterns are typical for options' prices with given maturity.

Now we can continue to derive a binomial tree. Under the assumption that $P_i \sim f'(x_i)$ we can write:

$$if \quad e^{\tau\cdot(r-q)} = \sum_{i=1}^{n} \frac{p_i \cdot S_i}{S_t} \quad \text{and} \quad S_i = S_t \cdot e^{\mu\cdot\tau+\sigma\cdot\sqrt{\tau}\cdot x_i'}, \text{ then } \mu = r - q - \frac{\ln\left(p_i \cdot e^{\sigma\cdot\sqrt{\tau}\cdot x_i'}\right)}{\tau} \qquad (7)$$

Figure 1 - *Function of density ύ₃ = - 0.5 and ύ₄ = 4.4*

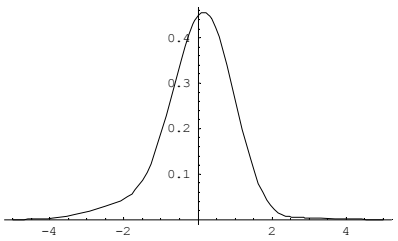


Figure 2 - Function of density ύ₃ = 0 and ύ₄=0

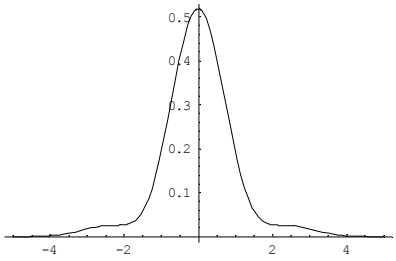


Figure 3 -Volatility smile ύ₃ = - 0.5 and ύ₄ =

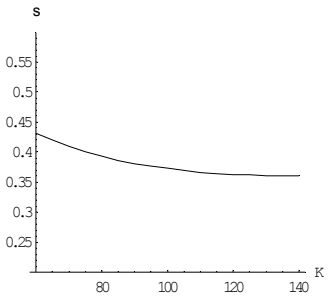
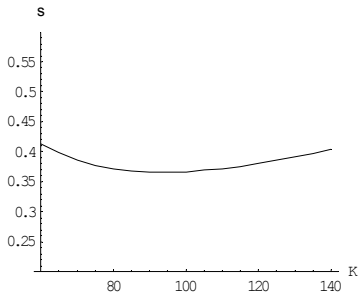
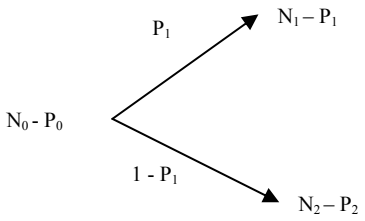


Figure 4 -Volatility smile ύ₃ = 0 and ύ₄=5.3



Source: Author's calculations.

Since we have ending values at each node and ending nodal probabilities we recover the rest of the tree. As we do not know anything about the behavior of stochastic process which leads to this particular ending risk-neutral distribution (unfortunately there are infinitely many processes), it is necessary to accept another assumption – *each path leading to the particular ending node has the same probability*. Armed with this assumptions we are able to create unique binomial tree. Suppose that we have two nodes N_1, N_2 with path probabilities P_1, P_2. For more detailed description see [13] and [17]. Using this method we can roll back to the initial node.



$P_0 = P_1 + P_2$

$p_1 = P_1 / P_0$

$p_2 = P_2 / P_0$

$$S_0 = e^{-(r-r_f)\Delta t} \cdot (p_1 \cdot S_1 + p_2 \cdot S_2)$$

4. Convergence of Results

At first we focus more closely on the convergence of the lookback call option price obtained by simulation to the analytical result. We suppose parameters as follows: $\mathrm{m}(S_s) = S_0 = 500$, $X = 500$, $T - t = \tau = 1$, $r = 0.1$, $r_f = 0$, $\sigma = 0.4$, and the monitoring interval will be equal to 0.1, 0.01, 0.002, 0.001, that is, we work with 10, 100, 500 and 1000 steps respectively. Clearly, we also need to detect optimal number of paths to simulate. The analytical solution according to (4) is 159,234.

The Table 1 below compares results given by Edgeworth tree and MC simulation, each path has also its antithetic counterpart. That is, we are using antithetic variable technique that generally leads to much smaller error rather than use of 2*N* independent samples. Simulations have been running in Excel (Visual basic program). For graphic presentation of results see charts in Appendix II. In Appendix I, we also provide results obtained by simulation in Mathematica® including time costs; this time however, we have not used the method of antithetic variates this time. We can see that the use of antithetic variables technique gives us really lower error as 2*N* independent paths.

As it is evident from Table 1a, 10 000 of different paths give us relatively good results, however, to obtain fair price, we should use at least 100 000 of paths. The effect of discrete monitoring interval plays the key role. Even if we suppose monitoring twice a day, the difference is significant. Therefore, it is rational to use the analytical formula to price the option only if the underlying asset price is monitored several times a day.

Table 1a - Convergence of MC simulation (first part) and simulation via Edgeworth tree (second part)

INTERVAL	Paths / Steps	10	100	1000	10000	100000	500000	1000000
0,1	10	**171,733**	**132,209**	**136,920**	**134,988**	**135,967**	**136,365**	**136,194**
0,01	100	**119,656**	**143,488**	**154,457**	**151,037**	**151,570**	**151,548**	**151,491**
0,002	500	**133,949**	**161,258**	**157,799**	**154,514**	**155,661**	**155,647**	**155,648**
0,001	1000	**131,433**	**159,903**	**159,733**	**156,550**	**156,847**	**156,714**	**156,747**
INTERVAL	Paths / Steps	10	100	1000	10000	100000	500000	1000000
0,1	10	**157,010**	**137,703**	**137,845**	**139,368**	**140,361**	**140,527**	**140,438**
0,01	100	**169,918**	**159,460**	**153,526**	**153,195**	**152,943**	**152,907**	**152,907**
0,002	500	**166,810**	**164,665**	**157,906**	**156,438**	**156,871**	**156,303**	**156,352**
0,001	1000	**179,038**	**148,473**	**155,081**	**156,411**	**157,228**	**157,203**	**157,143**

Source: Author´s calculations.

Table 1b - Standard error of mean sample, MC simulation (first part) and Edgeworth tree (second part)

INTERVAL	Paths / Steps	10	100	1000	10000	100000	500000	1000000
0,1	10	**20,790**	**7,898**	**2,559**	**0,763**	**0,246**	**0,110**	**0,078**
0,01	100	**10,940**	**6,956**	**2,382**	**0,754**	**0,242**	**0,108**	**0,076**
0,002	500	**15,248**	**7,083**	**2,541**	**0,753**	**0,238**	**0,107**	**0,076**
0,001	1000	**19,779**	**7,826**	**2,533**	**0,757**	**0,240**	**0,107**	**0,075**
INTERVAL	Paths / Steps	10	100	1000	10000	100000	500000	1000000
0,1	10	**12,892**	**7,163**	**2,350**	**0,748**	**0,236**	**0,107**	**0,075**
0,01	100	**20,651**	**8,210**	**2,431**	**0,749**	**0,238**	**0,107**	**0,076**
0,002	500	**16,355**	**6,824**	**2,458**	**0,750**	**0,239**	**0,107**	**0,075**
0,001	1000	**16,107**	**5,559**	**2,454**	**0,768**	**0,240**	**0,107**	**0,076**

Source: Author´s calculations.

5. The Effect of Skewness and Kurtosis

We focus on the look back options in this article, particularly on the effect of skewness and kurtosis. The very first and the most logical step is to be an assessment of the accuracy of this method. We evaluate prices of 42 look back options using analytical formula for given parameters (S_0= 500, r = 0.1, r_f = 0, σ = 0.4, Number of steps simulated in each path = 1000). The problem of continuous solution is its continuousness. In finite time where we can observe prices of the underlying security in discrete intervals, a continuous solution can differ significantly from the "correct price". Compare Table 3, Table 4 in Appendix III for actual parameters and preceding Section for others.

The most important is accuracy of simulation via tree in comparison to Monte Carlo simulation, if the differences were significant we would not be able to

assess the influence of skewness and kurtosis. According to Table 2 differences are quite smaller and are acceptable. These differences are caused by the limitation of tree approximation of Brownian motion (the errors are caused by the finiteness of set of possible values which the tree can adapt). If we find these differences unacceptably high, we would be still able to recover "correct" prices using control variance technique.

Table 2 - The difference between MC and tree results (%)

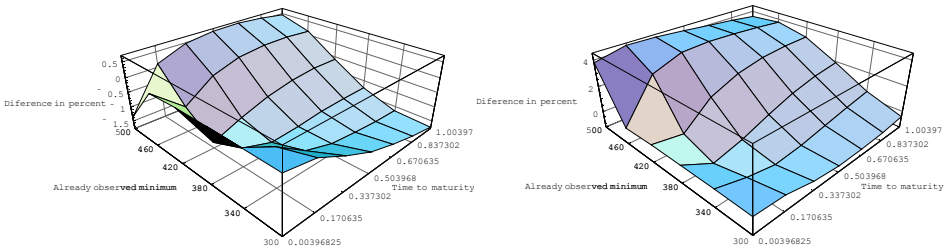
Interval of observation	Time\ Price Smin	300.0000	340.0000	380.0000	420.0000	460.0000	500.0000
0.0010	1.0040	-0.0431	-0.0129	0.0355	0.0765	0.1238	0.1634
0.0008	0.8373	-0.0402	-0.0172	0.0308	0.0817	0.1322	0.1763
0.0007	0.6706	-0.0354	-0.0260	0.0233	0.0818	0.1378	0.1904
0.0005	0.5040	-0.0296	-0.0297	0.0103	0.0827	0.1470	0.2063
0.0003	0.3373	-0.0208	-0.0253	-0.0132	0.0651	0.1495	0.2251
0.0002	0.1706	-0.0087	-0.0143	-0.0198	0.0158	0.1364	0.2475
0.0000	0.0040	-0.0002	-0.0003	-0.0004	-0.0005	-0.0009	0.2848

Source: Author´s calculations.

We can proceed to evaluate an effect of skewness and kurtosis. Using a simulation via tree we will find arbitrage free prices of the 42 same options with the same parameters. We will only change a shape of ending risk neutral distribution; more particularly we will focus on two points {skewness; kurtosis} that are characteristic for stock exchange market {-0.5; 4.4} and foreign exchange market {0; 5.3}.

Figure 5 shows the influence at ***stock exchange market*** for given parameters. According to this model B-S environment ***slightly overvalues*** lookback options that are newly issued and undervalues options that have already observed minimum lower than the present value of the underlying security. For exact values see Table 10 in Appendix III. Figure 6 shows the influence at ***foreign exchange market*** for given parameters. According to this model B-S environment ***highly overvalues*** look back options that are newly issued and slightly undervalues options that have already observed minimum deeply lower than the present value of the underlying security. It is caused by kurtosis. It means that fat tails heavily affect the pay-off function of the lookback call option. For exact values see Table 13 in Appendix III.

Fugure 5 and Figure 6 - The percent difference between parameters {0; 3} and {-0.5; 4.4} using simulation via tree



Source: Author´s calculations.

5. Conclusion

There are many options referred to as path dependent. The big problem arises if the path is observable only in finite set of days. If the continuous solution of the pricing problem is used to price these options the error (and possible loss) can be huge. In this paper we have presented some results given by numerical methods, in particular Monte Carlo simulation and simulation via Lattice model. It is also well known that assumptions of the B-S world are biased, which may lead to a possibility of loss in trading with exotic option.

At first, we were interested in convergence of discrete numerical pricing to the B-S model. We can conclude that to price the lookback call options via simulation we should carry out at least few thousand of different paths. However, very satisfactory results are obtainable with 1 000 000 of paths. Unfortunately, as it is clear from Appendix I, the time cost can be huge. Analytical formula slightly overvalues the option. On the other hand, if we need to price long-life option, which's monitoring interval is an hour or less, we should apply this formula, due to huge time costs of numerical technique.

The paper also shows a relatively simple technique how to price such an exotic path dependent option under the influence of skewness and kurtosis. A simulation via tree seems to be a good technique for valuation such option even though it is a time consuming technique. We have showed that especially kurtosis of ending risk neutral distribution has high effect on the option price. B-S world is overpricing a newly issued option. A size of such overpricing is increasing with grow of kurtosis of ending risk neutral distribution. On the other hand skewness has an effect of underpricing options when the observed minimum is lower than current price.

This topic is especially important for banks with large portfolio of exotic options that are selling them to private investors and should not be underestimated.

Abstract

Cílem tohoto článku je především posoudit vliv odlišného charakteru výnosů podkladového aktiva než je standardně předpokládáno (šikmost, špičatost) na hodnotu opce typu ***lookback***. Prvním krokem je posouzení konvergence numerických metod užitých při oceňování opcí tohoto typu k sobě navzájem a taktéž k ceně získané při aplikaci analytické formule na základě B-S modelu. Následně je při stanovených parametrech simulací studován vliv nenormálních výnosů na hodnotu lookback opce. Hodnoty šikmosti a špičatosti byly zvoleny v souladu s empirickými výzkumy jak pro akciový trh, tak trh měnový. Z dostupných simulačních metod byly v článku aplikovány metoda ***Monte Carlo*** a ***simulace ve stromě*** dle Rubinsteina.

References

[1] BLACK, F. – SCHOLES, M. The Pricing of Options and Corporate Liabilities, *Journal of Political Economy*, 81. May-June 1973, pp. 637-659.

[2] BATES, D.S. The crash of ’87: Was it expected? The evidence from options markets, *Journal of Finance* 46, pp. 1009–1044, 1991.

[3] BATES, D.S. Jumps and Stochastic Volatility: Exchange rate processes implicit in deutschemark options, *Review of Financial Studies* 9, pp. 69–108, 1996.

[4] CARR, P. – ELLIS, K. – GUPTA, V. Static Hedging of Exotic Options. *Journal of Finance*, p. 53, 1998.

[5] CONT, R. Beyond Implied Volatility. *Working paper 98*, 1998.

[6] DUPIRE, B. Model Art. *Risk* 6, pp. 118–124, 1993.

[7] DUPIRE, B. Pricing with a Smile. *Risk* 7, pp. 18–20, 1994.

[8] FAMA, E.F. The Behaviour of Stock Market Prices, *Journal of Business*, 38, pp. 34-105, 1965.

[9] GARMAN, M. Recollection in Tranquillity. *Risk*, Vol. 2, no. 3. pp. 16-19, 1989.

[10] GOLDMAN, M. – SOSIN, H.B. – GATTO, M.A. Path Dependent Options: Buy at the Low, Sell at the High. *Journal of Finance*, 34. pp. 1111-1128, 1979.

[11] HULL, J.C. *Options, Futures, & other Derivatives*. Prentice Hall, 2002.

[12] JACKWERTH, J.C. Generalized Binomial Trees. *Journal of Derivatives* 5, pp. 7-17, 1997.

[13] JACKWERTH, J. – RUBISNTEIN, M. Recovering Probability Distributions from Contemporaneous Security Prices. *Journal of Finance*, 1996.

[14] JURCZENKO, E. – MAILLET, B. – NÉGREA, B. Multi-moment Approximate Option Pricing Models: A General Comparison. *Working paper*. Université de Paris I Panthéon-Sorbonne, March 2002.

[15] MADAN, D.B. – CARR, P.P. – CHANG, E.C. The Variance Gamma Process and Option Pricing. *European Finance Review* 2, pp. 79–105, 1998.

[16] MUSIELA, M. – RUTKOWSKI, M. *Martingale Methods in Financial Modelling*. Springer-Verlag Berlin Heidelberg, 1997.

[17] RUBINSTEIN, M. Implied binomial trees, *Journal of Finance* 49, pp.771–818, 1994.

[18] RUBINSTEIN, M. Non-parametric tests of alternative option pricing models using all reported trades and quotes on the 30 most active CBOE option classes from August 23, 1976 through August 31, 1978, *Journal of Finance* 40, pp. 455–480, 1985.

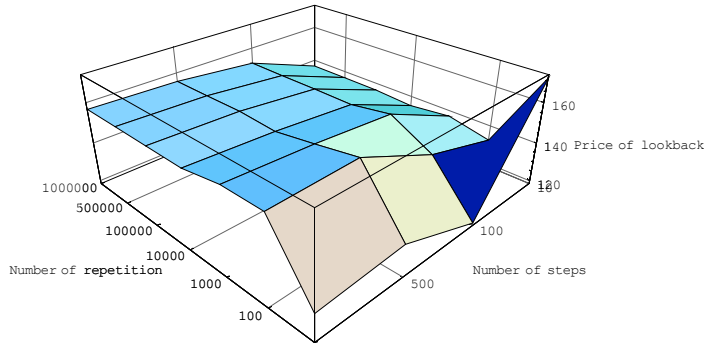
[19] Rubinstein. m. Edgeworth binomial trees, 1998, www.haas.berkeley.edu/finance/wp/rpf232.pdf.

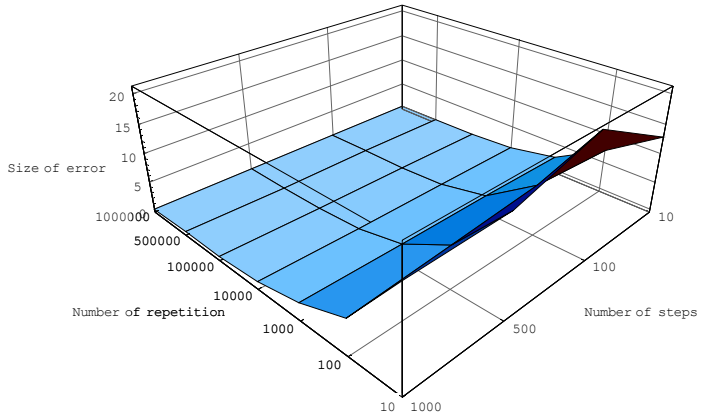
Appendix I Results and time cost given by simulation without antithetic variates in Mathematica

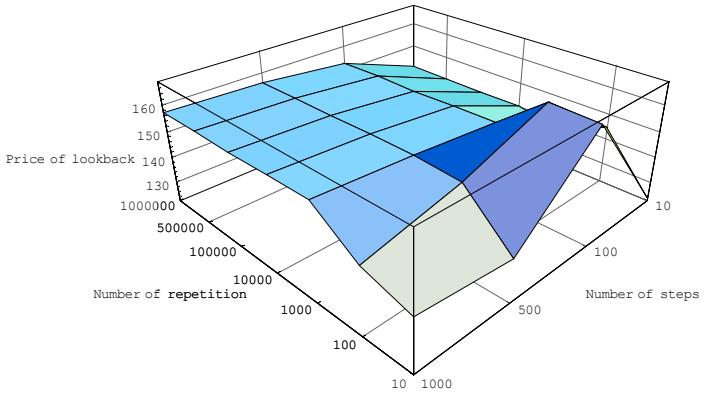
512RAM, Pentium 4 CPU 2.40 GHz

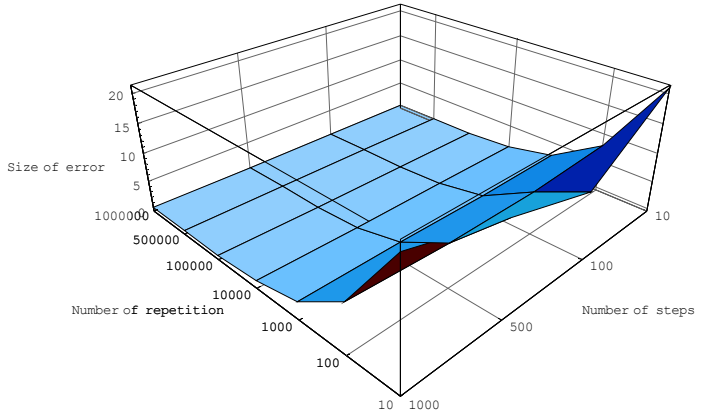
INTERVAL		***0,1***			***0,01***	
Paths	Value	StErOfMS	time	Value	StErOfMS	time
10	**173,93**	**57,30**	*0. Second*	**250,361**	**108,665**	*0.11 Second*
100	**148,17**	**15,62**	*0.046 Second*	**173,077**	**23,6118**	*0.406 Second*
1000	**139,77**	**5,21**	*0.5 Second*	**147,627**	**5,67985**	*3.968 Second*
10000	**134,38**	**1,61**	*5. Second*	**152,389**	**1,85813**	*39.313 Second*
100000	**136,64**	**0,52**	*49.266 Second*	**152,621**	**0,57783**	*460.735 Second*
500000	**137,27**	**0,23**	*250.782 Second*	**152,446**	**0,258247**	*1988.81 Second*
1000000	**135,87**	**0,16**	*502.484 Second*	**151,822**	**0,18146**	*4165.08 Second*
INTERVAL		***0,002***			***0,001***	
Paths	Value	StErOfMS	time	Value	StErOfMS	time
10	**191,133**	**50,0019**	*0.437 Second*	**171,148,**	**62,094**	*0.343 Second*
100	**169,059**	**18,5555**	*1.641 Second*	**154,718**	**14,6257**	*3.188 Second*
1000	**155,161**	**5,70989**	*16.688 Second*	**151,249**	**5,44104**	*31.641 Second*
10000	**158,081**	**1,73745**	*165.203 Second*	**157,429**	**1,70715**	*322.296 Second*
100000	**154,959**	**0,542732**	*1659.75 Second*	**155,885**	**0,535115**	*3228.44 Second*
500000	**155,557**	**0,244327**	*8418.98 Second*	**156,533**	**0,240242**	*16064.5 Second*
1000000	**155,356**	**0,172189**	*16431.1 Second*	**156,294**	**0,169656**	*32085.6 Second*

Appendix II Prices of lookback call (first column) and its standard deviation of mean sample (second column) via MC simulation (first row) and via simulation in tree (second row)









Appendix III

Standard inputs S_0= 500, r = 0.1, r_f = 0, σ = 0.4

Table 3 Price of look back call option ($\acute{\upsilon}_3$ = 0 and $\acute{\upsilon}_4$ = 3) using analytical formula

Time\Price S_{min}	300.0000	340.0000	380.0000	420.0000	460.0000	500.0000
1.0040	236.8835	209.8296	187.9951	172.1479	162.6574	159.5387
0.8373	230.0993	201.1161	177.4105	160.0333	149.5606	146.1089
0.6706	223.3130	192.1015	166.0952	146.7552	134.9905	131.0960
0.5040	216.6938	182.9226	154.0028	132.0053	118.4203	113.8906
0.3373	210.5214	173.9458	141.2388	115.3428	98.8843	93.3181
0.1706	205.0996	166.0818	128.6708	96.3374	74.1925	66.3955
0.0040	200.1190	160.1349	120.1508	80.1666	40.1853	10.0710

Table 4 Price of look back call option ($\acute{\upsilon}_3$ = 0 and $\acute{\upsilon}_4$ = 3) using Monte Carlo, number of simulation = 200 000, antithetic variable is on (400 000 total trials)

Interval of observation	Time\ Price Smin	300.0000	340.0000	380.0000	420.0000	460.0000	500.0000
0.0010	1.0040	236.7100	209.3770	187.1613	170.8535	160.8344	157.1548
0.0008	0.8373	229.9754	200.7527	176.6851	158.8586	147.8563	143.8368
0.0007	0.6706	223.2392	191.8402	165.5012	145.7265	133.4355	128.9680
0.0005	0.5040	216.6684	182.7630	153.5676	131.1590	117.0581	111.9526
0.0003	0.3373	210.5321	173.8811	140.9921	114.7360	97.7840	91.6419
0.0002	0.1706	205.1137	166.0863	128.6064	96.0592	73.4874	65.1196
0.0000	0.0040	200.1194	160.1352	120.1511	80.1670	40.1856	9.8500

Table 5 Size of error of Monte Carlo ($\acute{\upsilon}_3$ = 0 and $\acute{\upsilon}_4$ = 3) number of simulation = 200 000, antithetic variable is on (400 000 total trials)

Interval of observation	Time\ Price Smin	300.0000	340.0000	380.0000	420.0000	460.0000	500.0000
0.0010	1.0040	0.1570	0.1685	0.1757	0.1764	0.1727	0.1700
0.0008	0.8373	0.1313	0.1437	0.1527	0.1548	0.1514	0.1486
0.0007	0.6706	0.1045	0.1174	0.1283	0.1325	0.1297	0.1266
0.0005	0.5040	0.0766	0.0890	0.1017	0.1088	0.1071	0.1039
0.0003	0.3373	0.0482	0.0579	0.0714	0.0822	0.0830	0.0797
0.0002	0.1706	0.0221	0.0252	0.0346	0.0484	0.0553	0.0522
0.0000	0.0040	0.0005	0.0005	0.0005	0.0005	0.0006	0.0069

Table 6 Price of look back call option ($\acute{\upsilon}_3$ = 0 and $\acute{\upsilon}_4$ = 3) using simulation via tree, number of simulation = 200 000, antithetic variable is on (400 000 total trials)

Interval of observation	Time\ Price Smin	300.0000	340.0000	380.0000	420.0000	460.0000	500.0000
0.0010	1.0040	236.6081	209.3500	187.2278	170.9843	161.0334	157.4116
0.0008	0.8373	229.8828	200.7183	176.7396	158.9884	148.0518	144.0905
0.0007	0.6706	223.1602	191.7904	165.5397	145.8457	133.6193	129.2136
0.0005	0.5040	216.6043	182.7086	153.5834	131.2675	117.2302	112.1835
0.0003	0.3373	210.4882	173.8370	140.9734	114.8106	97.9302	91.8481
0.0002	0.1706	205.0958	166.0627	128.5810	96.0744	73.5876	65.2808
0.0000	0.0040	200.1189	160.1348	120.1507	80.1666	40.1853	9.8781

Table 7 Size of error of simulation via tree ($\acute{\upsilon}_3$ = 0 and $\acute{\upsilon}_4$ = 3), number of simulation = 200 000, antithetic variable is on (400 000 total trials)

Interval of observation	Time\ Price Smin	300.0000	340.0000	380.0000	420.0000	460.0000	500.0000
0.0010	1.0040	0.1564	0.1678	0.1750	0.1757	0.1720	0.1694
0.0008	0.8373	0.1308	0.1432	0.1521	0.1542	0.1508	0.1480
0.0007	0.6706	0.1041	0.1170	0.1278	0.1320	0.1292	0.1262
0.0005	0.5040	0.0763	0.0887	0.1014	0.1084	0.1067	0.1035
0.0003	0.3373	0.0480	0.0577	0.0711	0.0819	0.0827	0.0794
0.0002	0.1706	0.0220	0.0251	0.0344	0.0482	0.0551	0.0521
0.0000	0.0040	0.0005	0.0005	0.0005	0.0005	0.0006	0.0068

Table 8 Price of look back call option ($\acute{\upsilon}_3$ = -0.5 and $\acute{\upsilon}_4$ = 4.4) using simulation via tree, number of simulation = 200 000, antithetic variable is on (400 000 total trials)

Interval of observation	Time\ Price Smin	300.0000	340.0000	380.0000	420.0000	460.0000	500.0000
0.0010	1.0040	240.7949	212.9137	189.6349	171.9895	160.8290	156.6998
0.0008	0.8373	233.5579	204.0110	179.0402	159.9397	147.7740	143.2733
0.0007	0.6706	226.2514	194.8086	167.7918	146.8563	133.3882	128.4017
0.0005	0.5040	218.9644	185.3633	155.8126	132.4351	117.1642	111.4949
0.0003	0.3373	211.8859	175.8682	143.1023	116.2184	98.1706	91.4074
0.0002	0.1706	205.4385	166.8992	130.0978	97.6383	74.2717	65.2075
0.0000	0.0040	200.1194	160.1353	120.1511	80.1670	40.2120	10.0142

Table 9 Size of error of simulation via tree ($\acute{u}_3$ = -0.5 and $\acute{u}_4$ = 4.4), number of simulation = 200 000, antithetic variable in on (400 000 total trials)

Interval of observation	Time\ Price Smin	300.0000	340.0000	380.0000	420.0000	460.0000	500.0000
0.0010	1.0040	0.2090	0.2189	0.2259	0.2279	0.2250	0.2219
0.0008	0.8373	0.1751	0.1857	0.1941	0.1973	0.1948	0.1916
0.0007	0.6706	0.1406	0.1517	0.1616	0.1666	0.1648	0.1613
0.0005	0.5040	0.1053	0.1164	0.1276	0.1349	0.1344	0.1309
0.0003	0.3373	0.0686	0.0787	0.0907	0.1009	0.1030	0.0994
0.0002	0.1706	0.0312	0.0375	0.0477	0.0603	0.0678	0.0647
0.0000	0.0040	0.0007	0.0007	0.0007	0.0007	0.0013	0.0086

Table 10 The difference in % between parameters {0; 3} and {-0.5; 4.4} using simulation via tree

Interval of observation	Time\ Price Smin	300.0000	340.0000	380.0000	420.0000	460.0000	500.0000
0.0010	1.0040	-1.7388	-1.6738	-1.2693	-0.5845	0.1271	0.4542
0.0008	0.8373	-1.5735	-1.6140	-1.2850	-0.5948	0.1880	0.5704
0.0007	0.6706	-1.3663	-1.5493	-1.3422	-0.6882	0.1733	0.6323
0.0005	0.5040	-1.0779	-1.4322	-1.4307	-0.8816	0.0563	0.6175
0.0003	0.3373	-0.6596	-1.1549	-1.4877	-1.2114	-0.2450	0.4822
0.0002	0.1706	-0.1668	-0.5012	-1.1659	-1.6017	-0.9210	0.1124
0.0000	0.0040	-0.0002	-0.0003	-0.0004	-0.0006	-0.0663	-1.3596

Table 11 Price of look back call option ($\acute{u}_3$ = 0 and $\acute{u}_4$ = 5.3) using simulation via tree, number of simulation = 200 000, antithetic variable in on (400 000 total trials)

Interval of observation	Time\ Price Smin	300.0000	340.0000	380.0000	420.0000	460.0000	500.0000
0.0010	1.0040	237.6368	208.3342	183.7128	165.6409	155.3080	152.0751
0.0008	0.8373	231.3922	200.5063	174.0115	154.1321	142.5314	138.9021
0.0007	0.6706	225.0060	192.4317	163.7907	141.6986	128.4614	124.3036
0.0005	0.5040	218.4774	184.1285	153.0222	128.1182	112.6405	107.7207
0.0003	0.3373	211.8243	175.6364	141.7431	113.0939	94.2267	88.0677
0.0002	0.1706	205.3389	167.0580	130.1390	96.3638	71.3880	62.5654
0.0000	0.0040	200.1192	160.1350	120.1509	80.1668	40.2205	9.5150

Table 12 Size of error of simulation via tree ($\acute{u}_3$ = 0 and $\acute{u}_4$ = 5.3), number of simulation = 200 000, antithetic variable in on (400 000 total trials)

Interval of observation	Time\ Price Smin	300.0000	340.0000	380.0000	420.0000	460.0000	500.0000
0.0010	1.0040	0.2350	0.2450	0.2524	0.2545	0.2510	0.2476
0.0008	0.8373	0.1973	0.2079	0.2167	0.2202	0.2172	0.2137
0.0007	0.6706	0.1591	0.1701	0.1803	0.1857	0.1836	0.1798
0.0005	0.5040	0.1197	0.1309	0.1422	0.1501	0.1495	0.1455
0.0003	0.3373	0.0786	0.0893	0.1012	0.1118	0.1142	0.1101
0.0002	0.1706	0.0353	0.0432	0.0540	0.0665	0.0746	0.0712
0.0000	0.0040	0.0007	0.0007	0.0007	0.0007	0.0014	0.0093

Table 13 The difference in % between parameters {0; 3} and {0; 5.3} using simulation via tree

Interval of observation	Time\ Price Smin	300.0000	340.0000	380.0000	420.0000	460.0000	500.0000
0.0010	1.0040	-0.4329	0.4876	1.9133	3.2259	3.6865	3.5091
0.0008	0.8373	-0.6523	0.1057	1.5678	3.1507	3.8731	3.7353
0.0007	0.6706	-0.8204	-0.3333	1.0679	2.9267	4.0151	3.9500
0.0005	0.5040	-0.8573	-0.7712	0.3667	2.4581	4.0747	4.1430
0.0003	0.3373	-0.6308	-1.0245	-0.5430	1.5180	3.9303	4.2927
0.0002	0.1706	-0.1184	-0.5958	-1.1972	-0.3003	3.0811	4.3402
0.0000	0.0040	-0.0001	-0.0001	-0.0002	-0.0003	-0.0876	3.8152

APPROACHES TO APPRISING FINANCIAL DERIVATIVES WITH APPLICATION TO NON-OPTION CONTRACTS

Zdeněk Zmeškal[1]

Key words

non-option derivative contract, forward, futures, non-arbitrage strategy, replication strategy, hedging strategy, discrete payoffs, continuous payoffs

1. Introduction

Appraising be one of the starting point for most financial decision-making procedures. Valuing financial derivatives is difficult problem, because derivative prices depend upon underlying assets price, which be developed accidentally with considerable volatilities. Substantial is a form of payoff function as well.

The paper is sight on appraising derivative type contract strategy on risk neutral non-arbitrage strategy and replication strategy. Derived and presented is also hedging strategy. Fundamental approaches and valuation of derivative contracts on chosen underlying assets are presented, there is made a comparison and generalisation of apprising methodology as well.

2. Description of Apprising Strategies of Financial Derivatives

Non-optional contracts (forwards, futures) with one underlying asset for one period will be appraised. Valuing goes out from known presumption of perfect (efficient) market; infinite (arbitrary) divisibility assets, neglect of transaction cost, without taxes and admissible short sale. For simplification a risk-free continuous interest rate is used.

Further following notation is applied, $f_{t,T}$ is prise of derivative, $F_{t,T},(X)$ is delivery (exercise) price, S_t is value of underlying asset, R is risk-free rate, VH_T is intrinsic value (payoff function) in maturity moment, t is moment of apprising before

[1] Zdeněk Zmeškal, doc. Dr. Ing., VŠB-TU Ostrava, Faculty of Economics, Finance department, Sokolská 33, Ostrava, 702 00, Czech republic, Zdenek.Zmeskal@vsb.cz
The paper was supported partly by Grant Agency of Czech Republic (GACR) 402/02/1046

exercise time, T is moment of derivative exercise (maturity), TT is maturity moment of underlying asset , simultaneously $t < T \leq TT$. Period to derivative maturity $dt=T-t$.

2.1 Non-Arbitrage Risk-Free Strategy

This appraising strategy go out from conditions, that position (portfolio) Π_t is created from underlying asset, derivative and risk-free deposit, so as every portfolio gets risk-free return. Value of position in maturity moment Π_T must coincide with risk-free return, thus generally

$$\Pi_t \cdot e^{R\cdot(T-t)} = \Pi_T. \tag{1}$$

If the inequality greater was fulfilled $\Pi_t \cdot e^{R\cdot(T-t)} > \Pi_T$, then long position should be profitable; it means to hold an original portfolio and sold in maturity day. On the other side, if inequality less was fulfilled $\Pi_t \cdot e^{R\cdot(T-t)} < \Pi_T$, then from short position it is possible to get profit, so to sold original portfolio shortly and in maturity day buy with gain.

2.2 Replication Strategy

Replication strategy is based on creation a portfolio from underlying asset S and risk-free asset B so, for every situation to be replicated derivative value, it means a derivative value equals a portfolio value.

Portfolio value in apprising moment t,

$$a \cdot S_t + B_t = f_{t,T}, \tag{2}$$

portfolio value in maturity moment $T = t + dt$ for growing price,

$$a \cdot S_T^u + B_t \cdot (1+R)^{dt} = f_{T,T}^u, \tag{3}$$

portfolio value in maturity moment $T = t + dt$ for declining price,

$$a \cdot S_T^d + B_t (1+R)^{dt} = f_{T,T}^d, \tag{4}$$

where S is underlying asset value, a is amount of underlying asset, B is risk-free asset value, f is derivative value, R is risk-free rate, u (d) are indexes of growth (fall) of underlying asset.

By solution of equations (2), (3) and (4) for variables *a, B,* $f_{t,T}$ we can get a general formula for derivative price,

$$f_{t,T}(1+R)^{dt} = f^u_{T,T} \cdot \left[\frac{(1+R)^{dt} \cdot S_t - S^d_T}{S^u_T - S^d_T} \right] + f^d_{T,T} \cdot \left[\frac{S^u_T - (1+R)^{dt} \cdot S_t}{S^u_T - S^d_T} \right]. \quad (5)$$

This is general formula for derivative price by replication strategy, which should be written as follows,

$$f_{t,T} = (1+R)^{-dt} \cdot \left[f^u_{T,T} \cdot (p) + f^d_{T,T} \cdot (1-p) \right],$$
$$f_{t,T} = (1+R)^{-dt} \cdot E\left(f_{T,T}\right),$$

where *p* is probability of growth (risk-neutral probability) and $E\left(f_{T,T}\right)$ is risk-neutral expected value. Derivative price is determined as present value of expected value in following period.

In a case of expressing $S^u_{t+dt} = S_t \cdot u$, $S^d_{t+dt} = S_t \cdot d$, then

$$p = \left[\frac{(1+R)^{dt} \cdot S_t - S_t \cdot d}{S_t \cdot u - S_t \cdot d} \right] = \left[\frac{(1+R)^{dt} - d}{u - d} \right].$$

Under these assumptions, a formula (5) is modified by this way,

$$f_{t,T}(1+R)^{dt} = f^u_{T,T} \cdot \left[\frac{(1+R)^{dt} - d}{u - d} \right] + f^d_{T,Tt} \cdot \left[\frac{u - (1+R)^{dt}}{u - d} \right]. \quad (6)$$

2.3 Hedging Strategy

In hedging apprising strategy a portfolio from underlying asset and derivative is created by way, that portfolio return should be risk-free.

Portfolio value in apprising moment *t,*

$$\Pi_t = h \cdot S_t - f_{t,T},$$

portfolio value in maturity moment $T = t + dt$ for growing price,

$$\Pi^u_{t+dt} = h \cdot S^u_{t+dt} - f^u_{t+dt,T},$$

portfolio value in maturity moment $T = t + dt$ for falling price,

$$\Pi^d_{t+dt} = h \cdot S^d_{t+dt} - f^d_{t+dt,T},$$

where h is an amount of underlying assets (hedging ratio).

Hedging against a random price change of underlying asset means, that in both cases (growth, fall) portfolio value be the same, thus

$h \cdot S^u_{t+dt} - f^u_{t+dt,T} = h \cdot S^d_{t+dt} - f^d_{t+dt,T}$, and after rearranging

$$h = \frac{f^u_{t+dt,T} - f^d_{t+dt,T}}{S^u_{t+dt} - S^d_{t+dt}} = \frac{\Delta f}{\Delta S} . \quad (7)$$

Because, portfolio return should be risk-free, then

$\left(h \cdot S_t - f_{t,T}\right) \cdot (1+R)^{dt} = h \cdot S^u_{t+dt} - f^u_{t+dt,T}$, or
$\left(h \cdot S_t - f_{t,T}\right) \cdot (1+R)^{dt} = h \cdot S^d_{t+dt} - f^d_{t+dt,T}$.

Derivative price should be determined by both ways,

$$f_{t,T} = h \cdot S_t - \left(h \cdot S^u_{t+dt} - f^u_{t+dt,T}\right) \cdot (1+R)^{-dt} \quad (8)$$

or $f_{t,T} = h \cdot S_t - \left(h \cdot S^d_{t+dt} - f^d_{t+dt,T}\right) \cdot (1+R)^{-dt}$.

3. Application of Risk-Free Non-Arbitrage Strategy

3.1 Forward Contract on Share without Dividends Payoff – Long Position

Let us have a share and forward contract on share for long position. Due to (1) position from share, risk-free asset and derivative is created.

Table 1 – Long position – forward on share

Long position – forward on share		
Activity **Time**	**Cash outflow** * **t**	**Cash inflow** ** **T**
Short selling of share	$-S_t$	$-S_T$
Lending risk-free	$+S_t$	$+ S_t \cdot e^{R \cdot (T-t)}$
Purchase of forward (long position)	$+f_{t,T}$	$VH_T = S_T - X$
Total	$+f_{t,T} = \Pi_t$	$S_t \cdot e^{R \cdot (T-t)} - X = \Pi_T$

Remarks * *cash outflow (+), cash inflow (-);* ** *.cash inflow (+), cash outflow (-)*

Simultaneously Π_t, Π_T are value position (portfolio), T is maturity day, t is apprising moment before maturity ($t < T$), VH_t is intrinsic value (payoff function) in maturity day, X is exercise price, which is called for forward contracts delivery price and is depicted $F_{t,T}$. Risk-free rate is R.

To get risk-free return, then generally it be fulfilled due to (1)

$$\Pi_t \cdot e^{R\cdot(T-t)} = \Pi_T.$$

Thus, after substitution $f_{t,T} \cdot e^{R\cdot(T-t)} = S_t \cdot e^{R\cdot(T-t)} - X,$ and after rearranging a forward price is determined as follows,

$$f_{t,T} = S_t - X \cdot e^{-R\cdot(T-t)}. \tag{9}$$

3.2 Forward on Share without Dividend Payoff – Short Position

Let us get a share and forward on share, which should be apprised for short position. Due to (1) position from share, risk-free deposit and derivative is created.

Table 2 – Short position – forward on share

Short position - forward on share		
Activity **Time**	**Cash outflow*** **t**	**Cash inflow**** **T**
Borrowing risk-free	$-S_t$	$-S_t \cdot e^{R\cdot(T-t)}$
Purchase of share	$+S_t$	$+S_T$
Short selling of forward	$-f_{t,T}$	$VH_t = X - S_T$
Total	$-f_{t,T} = \Pi_t$	$X - S_t \cdot e^{R\cdot(T-t)} = \Pi_T$

Remarks * *cash outflow (+), cash inflow (-);* ** *cash inflow (+), cash outflow (-)*

Meaning of symbols is similar to long position, $-f_t$ is short position of forward contract. Due to (1) again $\Pi_t \cdot e^{R\cdot(T-t)} = \Pi_T$., so that after substitution,

$-f_{t,T} \cdot e^{R\cdot(T-t)} = X - S_t \cdot e^{R\cdot(T-t)}$, and it implies generally, that forward short

valuing formula is,

$$-f_{t,T} = X \cdot e^{-R\cdot(T-t)} - S_t\,. \tag{10}$$

3.3 Forward Contract on Commodity

Let us have a commodity, and forward contract on commodity price. There are supposed discrete storage cost. According to (1) the position from commodity, risk-free deposit and financial derivative is created.

Table 3 - Long position – forward on commodity

Long position – forward on commodity			
Activity **Time**	**Cash inflow*** **t**	**Cash inflow*** **$t < t_i < T$**	**Cash outflow**** **T**
Short selling of commodity	$-S_t$		$-S_T$
Lending risk-free	$+S_t$		$+ S_t \cdot e^{R\cdot(T-t)}$
Storage cost		c_{t_i}	$\sum_{t_i} c_{t_i} \cdot e^{R\cdot(T-t_i)}$
Purchase of forward (long position)	$+f_{t,T}$		$VH_T = S_T - X$
Total	$f_{t,T} \equiv \Pi_t$		$S_t \cdot e^{R\cdot(T-t)} + \sum_{t_i} c_{t_i} \cdot e^{R\cdot(T-}$ $- X = \Pi_T$

Remarks * *cash outflow (+), cash inflow (-);** .cash inflow (+),cash outflow (-)*

Symbol S_t means commodity price, $f_{t,T}$ is forward on commodity c_{t_i} is storage cost in discrete moments t_i. Condition (1) for risk-free return is written as follows,

$$f_{t,T} \cdot e^{R\cdot(T-t)} = S_t \cdot e^{R\cdot(T-t)} + \sum_{t_i} c_{t_i} \cdot e^{R\cdot(T-t_i)} - X,$$

and after rearranging forward price is following,

$$f_{t,T} = S_t + \sum_{t_i} c_{t_i} \cdot e^{-R\cdot(t_i-t)} - X \cdot e^{-R\cdot(T-t)} = S_t + U_t - X \cdot e^{-R\cdot(T-t)}. \qquad (11)$$

3.4 Forward Contract on Bond

Let us have fixed coupon bond with maturity *TT* and forward contract on this bond with maturity *T*, thereat $T < TT$. . Discrete e coupon payoffs are supposed. Due to (1) position from bond, risk-free deposit and derivative is created.

Table 4 - Long position – forward on bond

Long position – forward on bond			
Activity **Time**	**Cash outflow*** **t**	**Cash outflow*** **$t < t_i < T$**	**Cash inflow**** **T**
Short selling of bond	$-B_{t,TT}$		$-B_{T,TT}$
Lending risk-free	$+B_{t,TT}$		$+ B_{t,TT} \cdot e^{R\cdot(T-t)}$
CF from bond (coupon, nominal value)		$-CF_{t_i}$	$-\sum_{t_i} CF_{t_i} \cdot e^{R\cdot(T-t_i)}$
Purchasing of forward (long position)	$+f_{t,T}$		$VH_T = B_{T,TT} - X$
Total	$+f_{t,T} = \Pi_t$		$B_{t,TT} \cdot e^{R\cdot(T-t)} - \sum_{t_i} CF_{t_i}$ $- X = \Pi_T$

Remarks * *cash outflow (+), cash inflow (-);* ** *.....cash inflow (+) ,cash outflow (-)*

Meaning of symbols is following, *t* is moment of purchasing of contract (position opening), *T* is realisation moment of forward, t_i are moments of coupon payoffs, *TT* is moment of bond (underlying asset) maturity, CF_{t_i} are cash flow of bond (coupon payoffs).

Equation (1) for risk-free return is written,

$$f_{t,T} \cdot e^{R\cdot(T-t)} = B_{t,TT} \cdot e^{R\cdot(T-t)} - \sum_{t_i} CF_{t_i} \cdot e^{R\cdot(T-t)} - X.$$

After rearranging a formula of bond forward price is following

$$f_{t,T} = B_{t,TT} - \sum_{t_i} CF_{t_i} \cdot e^{-R\cdot(t_i-t)} - X \cdot e^{-R\cdot(T-t)} = B_{t,TT} - U - X \cdot e^{-R\cdot(T-t)} \qquad (12)$$

3.5 Forward Currency Contract

In time T company get Q units of foreign currency (EUR), thereat K_t is spot exchange rate of EUR (CZK/EUR), forward currency contract $f_{t,T}$ is based on exchange rate K_t (CZK/EUR), which is underlying asset. Due to (1) position from home and foreign currency, forward and risk-free deposit is created.

Table 5 – forward on currency

Long position – forward on currency						
Activity Time	**Cash outflow* t**			**Cash inflow** T**		
	Foreign currency (EUR)		**Transformation on home currency (CZK)**	**Foreign currency (EUR)**		**Transformation on home currency (CZK)**
Short selling of foreign currency	$-Q \cdot K_t \cdot \frac{1}{K_t} \cdot e^{-R_f}$	EUR	$-Q \cdot K_t \cdot e^{-R_f}$	$-Q \cdot e^{-R_f} \cdot e^{R_d}$	EUR	$-Q \cdot K_T$
Lending risk-free	$Q \cdot K_t \cdot e^{-R_f}$	CZK	$Q \cdot K_t \cdot e^{-R_f}$	$Q \cdot K_t \cdot e^{-R_f} e^{R_d}$	CZK	$Q \cdot K_t \cdot \cdot e^{(-R_f + R_d)(T-t)}$
Purchasing of forward (long position)	$+f_{t,T} \cdot Q$	CZK	$+f_{t,T} \cdot Q$	$Q \cdot (K_T - X) = = VH_T$	CZK	$Q \cdot (K_T - X) = = VH_T$
Total			$f_{t,T} \cdot Q$			$\left[K_t \cdot e^{(R_d - R_f)(T-} - X\right] \cdot Q$

Remarks ** cash outflow (+), cash inflow (-); ** .cash inflow (+), cash outflow (-)*

Symbol Q gives amount of foreign currency (EUR), K_t is exchange rate (CZK/EUR), R_f is risk-free rate of foreign currency, $f_{t,T}$ is forward value (CZK/EUR), R_d is risk-free rate of home currency (CZK).

Equation (1) for risk-free return is as follows,

$$f_{t,T} \cdot Q \cdot e^{R_d \cdot (T-t)} = Q \cdot \left(K_t \cdot e^{(R_d - R_f)(T-t)} - X\right).$$

After rearranging a forward price formula is following,

$$f_{t,T} = K_t \cdot e^{-R_f \cdot (T-t)} - X \cdot e^{-R_d \cdot (T-t)}. \quad (13)$$

3.6 Forward Contract on Share with Continuously Paid Dividends

Let us have a share with continuously paid dividends rate *q*; thereat the rate level is proportional to share price in every moment. According to (1) position from share, risk-free asset and forward is created.

Table 6 - Long position – Forward contract on share with continuously paid dividends

Long position – Forward contract on share with continuously paid dividends		
Activity **Time**	**Cash outflow*** **t**	**Cash inflow**** **T**
Short selling of share	$-S_t$	$-S_T$
Lending risk-free	$+S_t$	$S_t \cdot e^{(R-q)\cdot(T-t)}$
Purchase of forward (long position)	$+f_{t,T}$	$VH_T = S_T - X$
Total	$f_{t,T} = \Pi_t$	$S_t \cdot e^{(R-q)\cdot(T-t)} - X = \Pi_T$

Remarks * *cash outflow (+), cash inflow (-);* ** *.cash inflow (+), cash outflow (-)*

Cash inflow from lending is derived under continuous proportional dividend payoff. Continuous return is equal to $\ln \frac{S_t}{S_{t-dt}}$, and

$$\ln \frac{S_t}{S_{t-dt}} = (R-q) \cdot dt \,. \quad (14)$$

Because return in determined moment consist on risk-free return *R* minus proportional dividend payoff rate *q*. Regarding this,

$\ln \frac{S_t}{S_{t-dt}} = \ln S_t - \ln S_{t-dt} = d \ln S$. Then (14) is used by this way,

$d \ln S = (R-q) \cdot dt$, and thus, $\int_{t_0}^{T} d \ln S = \int_{t_0}^{T} (R-q) dt$.

After solution we get equation, $\ln S_T - \ln S_{t_0} = (R-q) \cdot (T-t_0)$,

$$\ln\frac{S_T}{S_{t_0}} = (R-q)\cdot(T-t_0),$$

$$S_T = S_{t_0}\cdot e^{(R-q)\cdot(T-t_0)}. \tag{15}$$

Because under non-arbitrage possibility equation (1) is valid, $\Pi_t \cdot e^{R\cdot(T-t)} = \Pi_T$, it imply generally,

$$f_{t,T} = S_t \cdot e^{-q\cdot(T-t)} - X\cdot e^{-R\cdot(T-t)}. \tag{16}$$

3.7 Forward Contract on Commodity with Continuous Storage Cost

Let us get a commodity price with proportional continuous costs with rate *c*. According to (1) position from commodity, risk-free deposit and financial derivative is created.

Table 7 – forward on commodity with continous cost

Long position – forward on commodity with continuous cost		
Activity **Time**	**Cash outflow*** **t**	**Cash inflow**** **T**
Short selling of commodity	$-S_t$	$-S_T$
Lending risk-free	$+S_t$	$S_t\cdot e^{(R+c)\cdot(T-t)}$
Purchase of forward (long position)	$+f_{t,T}$	$VH_T = S_T - X$
Total	$f_{t,T} = \Pi_t$	$S_t\cdot e^{(R+c)\cdot(T-t)} - X = \Pi_T$

Remarks * *cash outflow (+), cash inflow (-);* ***.cash inflow (+),cash outflow (-)*

Symbol *c* depicts continuous proportional cost rate. Cash inflow is derived from continuous return, which is determined from risk-free return *R* and continuous proportional cost rate *c*.

Continuous rate $\ln\frac{S_t}{S_{t-dt}}$ is expressed as follows, $\ln\frac{S_t}{S_{t-dt}} = (R+c)\cdot dt.$

Next procedure is similar to previous example, so then,

$$S_T = S_t \cdot e^{(R+c)\cdot(T-t)}. \tag{17}$$

Analogously, forward price is formulated by this way,

$$f_{t,T} = S_t \cdot e^{c\cdot(T-t)} - X \cdot e^{-R\cdot(T-t)}. \tag{18}$$

4. Application of Replication Strategy

4.1 Forward Contract on Share with Dividend Payoffs – Long Position

Apprising procedure goes out from (5)

$$f_{t,T} \cdot e^{R(T-t)} = f^u_{T,T} \cdot \left[\frac{(1+R)^{dt} \cdot S_t - S^d_T}{S^u_T - S^d_T}\right] + f^d_{T,Tt} \cdot \left[\frac{S^u_T - (1+R)^{dt} \cdot S_t}{S^u_T - S^d_T}\right]. \tag{19}$$

It is necessary to determine an intrinsic value dependent on underlying asset. Regarding the fact, that derivative price in maturity day is equal to intrinsic value, then for forward on a share without dividend payoff is valid that

$$f^u_{T,T} = VH^u_T = S^u_T - X \text{ or } f^d_{T,T} = VH^d_T = \max\left(S^d_T - X;0\right).$$

Thereat by symbol *X exercise (strike) price* is depicted, after substituting to (19) forward price is following,

$$f_{t,T} = S_t - X \cdot e^{-R\cdot(T-t)}. \tag{20}$$

It is the same formula, which we get by application the non-arbitrage strategy due to (9).

Intrinsic value for forward with continuous dividend payoffs is following,

$$f^u_{T,T} = VH^u_T = S_t \cdot e^{(u-q)} - X \text{ or } f^d_{T,T} = VH^d_T = S_t e^{(d-q)} - X .$$

After substituting to (19)

$$f_{t,T} = S_t \cdot e^{-q} - X \cdot e^{-R\cdot(T-t)}. \tag{21}$$

Formula again coincides with non-arbitrage strategy due to (16).

4.2 Forward Contract on Commodity with Discrete Cost

Procedure of valuing goes out again from (19)

$$f_{t,T} \cdot e^{R(T-t)} = f^u_{T,T} \cdot \left[\frac{(1+R)^{dt} \cdot S_t - S^d_T}{S^u_T - S^d_T} \right] + f^d_{T,Tt} \cdot \left[\frac{S^u_T - (1+R)^{dt} \cdot S_t}{S^u_T - S^d_T} \right].$$

It is necessary to determine an intrinsic value, which depends on underlying asset price. Regarding the fact, that financial derivative price in maturity day is equal to a intrinsic value, then for a forward on commodity with discreetly paid cost

$$f^u_{T,T} = VH^u_T = S^u_T + \sum_{t_i} c_{t_i} \cdot e^{-R\cdot(t_i - t)} - X \quad \text{or} \quad f^d_{T,T} = VH^d_T = S^d_T + \sum_{t_i} c_{t_i} \cdot e^{-R\cdot(t_i - t)} - X\,,$$

where symbol X depicts exercise price. After substituting to (19) price forward formula is as follows,

$$f_{t,T} = S_t + \sum_{t_i} c_{t_i} \cdot e^{-R\cdot(t_i - t)} - X \cdot e^{-R\cdot(T-t)} = S_t + U_t - X \cdot e^{-R\cdot(T-t)}. \tag{22}$$

The price formula is again the same, see (11).

5. Application of Hedging Strategy

5.1 Forward Contract on Share with Dividend Payoffs – Long Position

Apprising procedure goes out from (8)

$$f_{t,T} = h \cdot S_t - \left(h \cdot S^u_{t+dt} - f^u_{t+dt,T}\right) \cdot e^{-R(T-t)}\,, \tag{23}$$

where $h = \dfrac{f^u_{t+dt,T} - f^d_{t+dt,T}}{S^u_{t+dt} - S^d_{t+dt}} = \dfrac{\Delta f}{\Delta S}$ (24)

Likewise in Section 4.1 an intrinsic values for forward on share without dividend payoff is following

$$f^u_{T,T} = VH^u_T = S^u_T - X \quad \text{or} \quad f^d_{T,T} = VH^d_T = \max\left(S^d_T - X; 0\right). \tag{25}$$

After substituting (25) to (24) and calculation $h=1$. Then by substituting h to (23) we get forward price formula,

$$f_{t,T} = S_t - X \cdot e^{-R\cdot(T-t)}. \tag{26}$$

This formula coincides for formulas for non-arbitrage strategy (9) and replication strategy (20). It should be shown that application of hedging strategy under complete market condition on other forward contracts faces to identical forward apprising formula.

6. Generalised Formula of Forward Contracts

In previous part strategies to appraising financial derivative with emphasis on forward (futures) contracts were presented. There were shown that non-arbitrage strategy, replication strategy and hedging strategy under complete market assumptions are equivalent. From results for different forward contracts types should be derived generalised formula.

Forward price in a case of discrete payoffs of coupons, dividends, and cost should be expressed by formula,

$$f_{t,T} = S_t \pm U_t - X \cdot e^{-R\cdot(T-t)}. \tag{27}$$

Simultaneously, U means a present value of cash flow (cost, dividends, coupons etc.). Mark plus is valid for cash outflow and minus for cash inflow.

In a case of continuous proportional payoffs, forward price is commonly written as follows

$$f_{t,T} = S_t \cdot e^{\pm u} - X \cdot e^{-R\cdot(T-t)}. \tag{28}$$

Here u is proportional cash flow payoff rate (cost, dividends, coupons etc.). Similarly to previous situation mark plus is valid for cash outflow and minus for cash inflow.

Delivery price, $X \equiv F_{0,T}$, is determined in issuing forward moment so that $f_{0,T} = 0$. Then due to (27) and (28),

$$f_{0,T} = S_0 \pm U_0 - X \cdot e^{-R\cdot(T-0)} \quad \text{and} \quad f_{0,T} = S_0 \cdot e^{\pm u} - X \cdot e^{-R\cdot(T-0)}. \tag{29}$$

so that generalised delivery price formula is,

$$X_T \equiv F_{0,T} = (S_0 + U_0) \cdot e^{R\cdot T} \qquad \text{and} \qquad X_T \equiv F_{0,T} = S_0 \cdot e^{(R-u)\cdot T}. \tag{30}$$

7. Conclusion

In the paper strategies to apprising financial derivative contracts, especially non/option derivatives forward contracts were described and presented. Non-arbitrage strategy, replication strategy and hedging strategy were derived and applied. Subsequently, non-arbitrage strategy on underlying assets with discreetly paid cash flow (share, share with dividends payoffs, commodity with cost, bonds with coupons, currency), were applied. Further, apprising forwards (share with dividends payoffs, commodity with cost) with proportional continuous payments on non-arbitrage strategy basis were described and derived. Non-arbitrage strategy, replication strategy and hedging strategy were compared. It was shown, that under complete and effective market prepositions, apprising formula is equivalent in all strategies. Results were generalised, se equations (27) and (28), likewise delivery price formula was generalised, see equation (30).

Non-arbitrage strategy is applied mainly for financial derivatives with non-conditional payoff function, i.e. forwards, futures, swaps. Replication and hedging strategies are commonly used for valuing options and financial derivatives with complicated payoff function.

Abstract

V příspěvku jsou popsány přístupy k oceňování finančních derivátů se zřetelem na oceňování termínových kontraktů typu forward. Popsány a odvozeny jsou strategie na bázi nemožnosti arbitráže, replikační strategie a hedgingová strategie. Oceňování je prováděno za předpokladu dokonalého trhu. Podkladovými aktiv forwardů jsou, akcie, akcie s výplatou dividend, obligace, obligace s kupóny, komodita s náklady skladování, měna. Modely oceňování jsou formulovány jak pro diskrétní tak pro spojité výplaty. Je ukázáno, že za podmínek dokonalého trhu vedou všechny strategie ke stejným výsledkům.

References

[1] COPELAND, T. E, WESTON, J. F. *Financial theory and corporate finance,* Addison -Wesley, Reading, 1988.

[2] HULL, J. C. *Options, Futures, and other Derivatives.* Prentice Hall, 2000.

[3] JORION, P. *Value at Risk,* Mc Graw Hill, 1997.

[4] JORION, P. *Financial Risk Management Handbook 2001-2002,* Wiley Finance, 2000.

[5] SERCU, P., UPPAL, R. *International Financial Markets and The Firm*. Chapman and Hall, 1995.

[6] ZMEŠKAL, Z. Application of the fuzzy - stochastic methodology to appraising the firm value as a European call option, *European Journal of Operational Research*, no. 135/2, 2001.

[7] ZMEŠKAL, Z., ČULÍK, M. *Finanční rozhodování za rizika - sbírka řešených příkladů*, Ostrava: VŠB-TU, Ekonomická fakulta, 2002.

[8] ZMEŠKAL, Z. *Finanční modely*, Ostrava: VŠB-TU, Ekonomická fakulta, 2002.

[9] ZMEŠKAL, Z. Přístupy k eliminaci finančních rizik na bázi finančních hedgingových strategií. Praha: *Finance a úvěr,* no. 11-12, 2003.

FINANCING BY BONDS IN CONDITIONS OF THE SLOVAK REPUBLIC

Jaroslav Slepecký

Key words

capital market, bonds, financing of enterprises, financing of communities, PKB,a.s.

1. Introduction

Slovak capital market belongs to those less developed among the countries of Central and Eastern Europe. Its small liquidity does not create sufficient preconditions for financing of the needs of enterprises and communities through debit bond papers. Although during the first four months of 2002 bonds for more than 3 billion crowns were emitted, in comparison with banking accounts in a comparable period this represents a share of only round 1 per cent. Most of bonds were emitted by small and medium enterprises via brokers without participation of banks and without registration at Bratislava Stock Exchange (BCPB). Most of bond issues were underwritten by their clients.

2. Financing of Enterprises

Financing of investment plans by means of bond issues brings advantages to enterprises, which in many cases make them more attractive than credits. Besides the more advantageous credit rates the issuer does not have to constitute a lien for a concrete real estate. Investors like to buy bonds for their future position of a company's creditor and for resulting legal protection. Not uninteresting is even a simple transfer of a bond receivable and control of issuance conditions by Financial Market Authority and National Bank of Slovakia. Also fees can be lower than in case of credit, mainly for publicly non-marketable bonds. Banks still take a reserved approach towards bond issues, but even they will eventually realize that bond is a more liquid and a longer-term asset than credit and in case of an enterprise it is the acquisition of long-term resources.

Selected bond issues of small enterprises are presented in Table 1.1.

Table 1.1 - Selected bond issues of small enterprises

Issuer	Issue Volume (SKK)	Nominal Value	Number of Bonds	Start of Issue	Maturity	Interest Rate (%p.a.)	Interest Pay Out
Eduard Rada, a.s.	685 000	1 000	685	7.5.2002	31.12.2012	0.0	annually
Senetus, s.r.o.	68 000 000	10 000	170	20.2.2003	20.2.2013	5.0	annually
Apores, s.r.o.	200 000 000	100 000	2 000	31.3.2003	31.1.2005	5.0	annually
Senetus, s.r.o.	68 000 000	10 000	170	20.2.2003	20.2.2013	5.0	annually
Senetus, s.r.o.	30 000 000	15 000	50	15.1.2002	15.1.2012	7.0	annually
MP Trust, s.r.o.	60 000 000	100	15 000	10.6.2002	10.6.2017	7.5	one-off
Lovinit Trading, s.r.o.	10 000 000	100 000	100	28.2.2003	21.1.2011	8.0	bi-annually
Pimm, s.r.o.	2 200 000	10 000	220	5.6.2002	5.6.2005	16.0	monthly
Zdroj MT, s.r.o.	7 200 000	10 000	720	15.6.2002	15.6.2007	16.0	monthly
Amirp, s.r.o.	9 900 000	10 000	990	5.6.2002	5.6.2005	16.0	monthly
Pema, s.r.o.	6 340 000	10 000	634	5.6.2002	5.6.2005	16.0	monthly
Tabat, s.r.o.	4 000 000	100 000	40	1.10.2002	1.10.2010	17.0	monthly
Infis, s.r.o.	5 000 000	1 000 000	5	30.11.2001	30.11.2005	18.0	annually
Infis, s.r.o.	5 000 000	1 000 000	5	30.11.2001	30.11.2004	18.0	annually
Druhá prevodná, s.r.o.	20 000 000	100 000	200	19.12.2001	19.12.2006	19.0	annually

Source: http://www.etrend.sk/.

At BCPB bonds of 23 issuers are currently traded rarely, predominant part of which are government bonds and mortgage bonds. Other debit bond papers have practically disappeared from official market in spite of the effort to valuate creditworthiness of bonds by rating (Table 1.2).

The issue of a broader usage of bonds by enterprises stems in some cases also in low awareness of managers and in misunderstanding of the function of capital market. Success of debit bond papers is not about trust in capital market but in investor's confidence in a subject's ability to carry out its obligations.

3. Financing of Communities

Communities use finance from bond issues for resolving of investment plans approved by municipality. In principle they should regard returnable investments but this is not as a rule. Manager of a bond issue follows with potential issuers their repay ability as a priority (without distinguishing financing source) and after termination of primary sale adherence to the purpose of spending of resources that is set by issuance conditions. An issuer guarantees the obligations of bond issues by his whole property without any specification. To secure an obligation a sinking fund can be established in the issuance conditions.

Table 1.2 - Valuation of bonds marketable on listed market by CRA RATING AGENCY, a.s.

Issuer	Market	Number of Bond Issues	Granted Rating*
Slovak Republic	Listed Main	50	Baa- / skAaa
VÚB - HZL	Listed Main	4	--- / skAa+(pI)
VÚB	Listed Main	2	--- / skAa(pI)
Matador	Listed Main	2	Ba / skA -
Palma-Tumys	Listed Main	1	--- / skBaa+(pI)
Nafta	Listed Main	1	--- / skA(pI)
Slovenské elektrárne	Listed Main	1	--- / skAa-(pI)
UniBanka (Poľnobanka)	Listed Main	1	--- / skAa(pI)
HVB Bank Slovakia	Listed Main	1	--- / skAa(pI)
Tatra Banka – HZL	Listed Main	1	--- / skAa+(pI)
Istrobanka – HZL	Listed Main	1	--- / skAa(pI)
B.O.F.	Listed Parallel	1	Ba / skA
CAC LEASING Slovakia	Listed Parallel	1	--- / skA+(pI)
Harmanecké papierne	Listed Parallel	1	--- / skBaa(pI)
Banské stavby	Listed Parallel	1	--- / skBa(pI)
Slovenská sporiteľňa - HZL	Listed Parallel	1	--- / skAa+(pI)

Source: Bratislava Stock Exchange.
**Long-term international rating/long-term local rating (indicative long-term local rating).*

After the boom before 2000, when bonds were issued by almost „every“ town in the Slovak Republic, this form of financing of communities's needs is currently a rarity. Reasons for this situation are difficult to identify. After the problems of some towns with repay in recent years there is also apprehension about difficulty of the whole procedure. Also considerable fees play a role. Bond issues under SKK 50 mil. are not attractive for brokers. Also banks have their part of „blame“, which so far prefer credit programmes to bond issues for various reasons.

On the Slovak market Prvá komunálna banka, a.s. (PKB) is the leader in financing of communities. The bank (from 1.10.2003 DEXIA Banka Slovensko) is the leader also in broking of community bond issues (Table 2.1).

Currently (8.9.2003) primary sale of already the fourth community bond issue of town Žilina has been initiated, which is managed by PKB, a.s. Žilina has rich experience with financing of investment plans of the town by bond issues. The first issue with 17.25 % interest yield was issued ten years ago. The current hundred million issue with 7.8 % yield and 5 years maturity is determined for connecting of the two biggest housing estates in Žilina including trolley-bus traction. The issue shall cover about one fourth of the costs. Town Žilina was one of co-founders of PKB, a.s. and this is the main crediting bank of the town. In spite of that, the whole procedure from the first contact with the banks took more than half a year, whereas Draft Issuance Conditions were

approved by municipality on 19 May 2003. If future issuers count with these terms, they will save possible complications. An advantage can be also the positive rating of the town, which saves work of the employees of the bank – risk management department.

Table 2.1 - Community bond issues mediated by PKB, a.s.

1.1 Issuer	Date of Issue	Issue Volume (in SKK)	Discount Yield in %	Maturity Date	Yield Pay Out
1993					
Town Žilina I.	01.10.1993	100 000 000	17.25	01.10.1998	1.4. and 1.10.
1994					
Town Brezno	01.10.1994	40 000 000	18.5	01.10.1998	1.4. and 1.10.
1995					
Town Ružomberok	01.09.1995	15 000 000	16	01.09.1999	1.3. and 1.9.
Town Revúca	01.10.1995	20 000 000	15.9	01.10.2000	1.10.
Town Svidník	01.10.1995	25 000 000	13.8	01.10.2000	1.4. a 1.10.
Town Rimavská Sobota	15.12.1995	40 000 000	15.8	15.12.2000	15.12.
Town V. Kapušany	15.12.1995	15 000 000	15.9	15.12.1999	15.12.
1996					
Town Dolný Kubín	15.04.1996	20 000 000	15.3	15.04.2001	15.4. a 15.10.
Town Zvolen	20.11.1996	50 000 000	11.7	20.11.2001	20.11.
Town Žilina II.	05.12.1996	100 000 000	13	05.12.2002	5.12.
Town Žilina III.	07.12.1996	150 000 000	10	07.12.2006	7.12.
Town Nitra	12.12.1996	60 000 000	12.2	12.12.2001	12.12.
1997					
Town B. Bystrica	19.12.1996	150 000 000	10	19.12.2006	19.12.
Dubnica n. Váhom	10.02.1997	50 000 000	10	10.02.2007	10.2.
Trenčín	10.02.1997	100 000 000	10	10.02.2007	10.2.
Vráble	08.08.1997	25 000 000	13.2	08.08.2002	8.8.
Trnava	29.10.1997	80 000 000	14	29.10.2003	29.10.
1999					
Town Košice	15.12.1999	1 000 000 000	16.5	15.12.2004	15.12.
2003					
Town Žilina IV.	08.09.2003	100 000 000	7.8	08.09.2008	8.9.

Source: PKB, a.s.

4. Conclusion

Financing of the needs of enterprises and communities by means of bonds belongs among the slowly developing segments of financial market. Results for 2001 and the first half of 2002 show that bonds are becoming an interesting alternative for funded subjects as well as a suitable completion of portfolio of long-term resources of banks and of other, mainly institutional, investors.

Abstract

Příspěvek se zabývá současným stavem financování firem a měst prostřednictvím emisí dluhopisů v podmínkách Slovenské republiky. Podrobněji popisuje některé problémy financování obcí a možnosti, které nabízí např. Prvá komunálna banka,a.s. Žilina, která má vedoucí postavení při financování obcí v rámci SR.

References

[1] SLEPECKÝ, J., ŠTOFKOVÁ, J. *Vybrané kapitoly z finančného manažmentu*. Žilina: EDIS, 2001.

[2] ŠTOFKO, S., ŠTOFKOVÁ, J. Financovanie samospráv v Slovenskej republike. In *Zeszyty Naukowe WSBiF*, WSBiF Bielsko-Biala: 2002, ISSN 1429-673X.

[3] VOTRUBA, J., LUKAJ, B. *Koncerny IRI a ENI*. Praha: Akcenta, 2000.

[4] Zákon č. 530/1990 Z.z. o dlhopisoch v znení neskorších predpisov.

[5] An analysis of THE influence of corporate governance to dividend policy in the Czech gas industry.

AN ANALYSIS OF THE INFLUENCE OF CORPORATE GOVERNANCE TO DIVIDEND POLICY IN THE CZECH GAS INDUSTRY

Michaela Roubíčková

Key words

dividend policy, gas industry, majority owner, information asymmetry, agency conflict, correlation coefficient, available earning, growing annuity, return of invested capital, goal of the firm

1. Introduction

This paper deals with dividend policy applied in the Czech gas industry. Dividends are payments made by firms to their shareholders. They are viewed as a compensation for the shareholders´ delaying consumption. Dividends are also seen as a distribution of the firm's recent profit to its owners. There is still discussion in the academic world: what should the firm's dividend policy be, and does it really matter anyway? This paper shows that there are several cases, when dividend policy is very important for the investor.

2. The Investment of RWE Gas to the Czech Republic

Privatization of the Czech gas industry was successfully realised in the year 2002. New owner German corporation RWE Gas bought interests in eight regional gas distribution companies (in future referred to as GDC's) and in Transgas - monopoly importer of gas in the Czech Republic from National Property Fund of the Czech Republic (in future referred to as FNM ČR)[1]. On 16th May 2002 RWE Gas became the majority owner of almost all of the Czech Republic's gas supply system and gained access to the natural gas transit system that is so important for western Europe. The total purchase price for the acquisitions amounted to around €

[1] FNM was founded in 1991 for the purpose of providing for the technical implementation of individual privatisation decisions and the temporary management of state ownership interests intended for gradual privatisation, in accordance with the act on the powers of bodies of the Czech Republic in the transfer of state property to other persons and the act issued by the Czech National Council on the National Property Fund.

4,1 billion. The share of RWE Gas in capital of Czech natural gas companies is presented in Table 1.

RWE Gas holds between 46% and 58% of the shares in these regional supply companies, having a majority interest in six of the eight companies. The management of the Czech companies was assigned to German-Czech management teams immediately following the completion of the acquisition. The new owner brought along his corporate governance. Corporate governance in the Czech Republic is an actual issue, as its wrong implementation in domestic corporations is one of the basic causes for the inefficiency of the whole economy. In the Czech economy, which is defined by non-liquid financial markets, limited value of market mechanisms and high transaction costs, makes corporate governance fundamental. The gas industry is a strategic industry; it means that broad variety shareholders and stakeholders are present.

Table 1 - Share RWE in capital in %

Company[2]	**may 2002**	**as per 31.12.2003**	**Transgas as per 31.12.2003**	**Transgas+RWE as per 31.12.2003**
JČP	46,66	46,66	0,00	46,67
JMP	47,65	47,65	2,46	50,12
PP	49,18	49,24	0,00	49,24
SČP	49,18	51,00	0,82	51,19
SMP	40,05	40,06	18,09	58,15
STP	48,49	49,59	1,60	51,19
VČP	47,10	47,10	2,95	50,05
ZČP	45,84	45,84	4,28	50,12
Transgas	96,99	96,99		

Source: http://www.stp.cz/ + Annual Report VČP 2002, author´s own calculations.

The dividend literature has primarily relied on two reasonable predictions about dividend behaviour: information asymmetry and agency conflict. Particularly, the U.S. information asymmetry models argue that managers know more information than shareholders and dividends can reveal more to the market. But applying U.S. models to German firms is problematic. Corporate governance in German firms differs from the dominant form of corporate governance in the United States. The level of interaction between managers and shareholders is more intense in German than in the U.S. and German shareholders seem to have longer investment horizons than the U.S. So the

[2] Jihočeská plynárenská, a.s. (JČP), Jihomoravská plynárenská, a.s. (JMP), Pražská plynárenská, a.s. (PP), Severočeská plynárenská, a.s. (SČP), Severomoravská plynárenská, a.s. (SMP), Středočeská plynárenská, a.s. (STP), Východočeská plynárenská, a.s. (VČP), Západočeská plynárenská, a.s. (ZČP).

levels of information asymmetry and agency conflict are lower. German firms are less reluctant to omit and cut dividends, and their dividends are more responsive to earning changes. It may be one of the reasons for changing the dividend policy in the Czech natural gas companies.

3. Dividend Policy in the Czech Natural Gas Companies

Dividend policy in the Czech natural gas companies has changed radically. The development of dividend per share (DPS) and earning per share (EPS) in years 1998-2002 is shown in Table 2. It is clear that DPS increased in six of eight companies in 2001 and in seven out of eight companies in 2002, and their increase was radical in most cases.

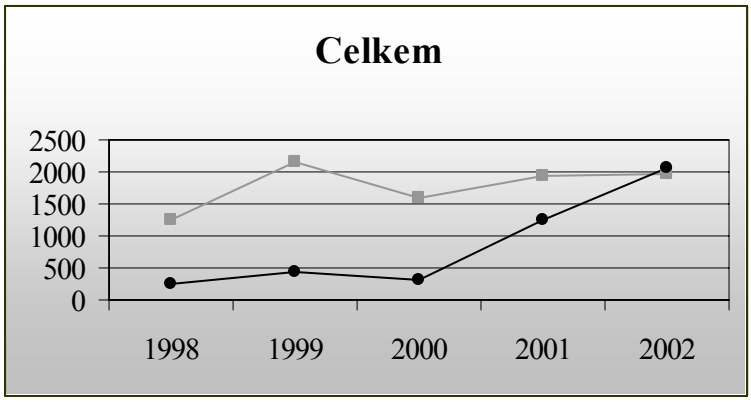
Table 2 - The development of DPS a EPS in the Czech GDC's in CZK

Company		1998	1999	2000	2001	2002
JCP	EPS	177,11	178,16	63,2	509,5	286
	DPS	30	0	15	15	100
JMP	EPS	125,52	366,26	340,3	232,2	294,6
	DPS	30	90	85	225	353
PP	EPS	169,97	170,93	101,4	67,3	141,4
	DPS	50	40	35	35	135
SCP	EPS	126,62	382,66	227,5	178,5	238,7
	DPS	35	95	35	170	233
SMP	EPS	194,84	221,59	177,3	106,3	106,5
	DPS	0	28	31,13	96,2	104,8
STP	EPS	152,17	189,06	238,8	270	280,4
	DPS	30	46	0	185	273,4
VCP	EPS	207,68	435,63	231,9	326,1	260,5
	DPS	50	100	58	316	253
ZCP	EPS	95,78	225,24	212,6	234,1	363,9
	DPS	22	50	47	212	605
in sum	EPS	1249,69	2169,53	1593	1924	1972
	DPS	247	449	306,13	1254,2	2057,2

Source: http://www.ariadna.cz/, http://stock.eunet.cz/, author's own calculations.

Figure 1 shows the development of total DPS and EPS in the Czech GDC's 1998-2002. The aggregated DPS was higher than the aggregated EPS in 2002. The correlation coefficient between DPS and EPS is 0,490254 in those years. It shows a long term positive correlation but it is clear that there is a strengthening tendency to pay out all available earnings.

Figure 1 - The development of total DPS and EPS in the Czech GDC's 1998-2002 (in CZK)



Source: Author´s calculations.

From this figure efforts of the new owner to get some of the invested money back as soon as possible are evident. Table 3 shows dividends received by RWE in 2002 and 2003. There are amounts of money in Czech crowns collected from eight natural gas companies and Transgas. The last line presents total amount in Euro.

Table 3 - Dividends[3] received by RWE in 2002 and 2003

co.	share bought	shares total	shares bought	DPS 01	DC01		DPS 02	DC02
JPČ	46,66	485 523	226 545	15	3 398 175,48		100	22 654 503,18
JMP	47,65	1 493 046	711 436	225	160 073 194,28		353	251 137 055,91
PP	49,18	1 439 907	708 146	35	24 785 119,19		135	95 599 745,45
SČP	49,18	1 031 131	507 110	170	86 208 738,39		233	118 156 682,61
SMP	40,05	2 069 728	828 926	96,2	79 742 687,36	30.	104,9	86 954 344,11
STP	48,49	649 425	314 906	185	58 257 643,76	6.	273,4	86 095 350,30
VČP	47,10	960 602	452 444	316	142 972 159,27	2	253	114 468 216,13
ZCP	45,84	777 466	356 390	212	75 554 767,85	0	605	215 616 200,71
Transgas	96,99		36 731 831	89	3 269 132 959,00	0	189	6 942 316 059,0
Celkem Kč	(%)				3 900 125 444,57	3		7 932 998 157,40
EURO			30.6.2002	29,25	133 337 622,04		31,58	251 203 234,88

Chyba!

Source: Annual Reports, author´s calculations.

It is too short a period to make some conclusions about the long term dividend policy in the Czech natural gas industry, but we can try to predict the return of

[3] DPS01 – DPS in 2001, DC01 – total amount DPS in 2001, (by analogy DPS02 and DC02), dividend are recount with exchange rate at 30th June 2002 and 2003. The date was set by estimation because of the different dates of general meetings.

invested capital. A growth of total dividends in GDC's and Transgas was 89 %. The sustainability of that growth is not probable. An increase of the average earning per share was 2,49 %. Since the new owner wants to restructure companies we can suppose a 4 % long term growth of EPS. A prediction of opportunity costs is difficult as well. The opportunity cost was determined in the amount of 8 % with regard to long term development of interest rates, risk of investment (it is not a very risky sphere of business) and development of return of long term bonds. The following formula was used to count the return of invested capital. It is a formula for the present value of growth annuity[4]. Dates from Table 3 were rounded off.

$$PV = A\frac{1}{r - g}\left[1 - \frac{(1+g)^n}{(1+r)^n}\right]$$

$$4.100.000 = 133.138 + \frac{251.203}{0{,}08 - 0{,}04}\left[1 - \frac{1{,}04^n}{1{,}08^n}\right]$$

The calculated return of invested capital is 27 years. It is a long term strategic investment. And dividends are only one way of getting money back for the investor. It seems to be the main reason for the RWE Gas dividend policy. The second is corporate governance, and the third may be the Czech capital market. It is very often characterised by chaos and non-linear dynamics.

3. Conclusion

Setting the optimal dividend policy is the goal of every single firm and it can not be universal. It is impossible to set an optimal and universal dividend policy even for companies with similar characteristics. The reason for that is the existence of numerous factors influencing both potential receivers of dividends and dividends paying companies. Many of these factors are not financial figures and can not be exactly found and specified.

It is too early to recognize the dividend policy of the new owner of the Czech natural gas companies - the German corporation, RWE Gas - but it is obvious that one of its main goals is to minimize the pay back period of investment by maximizing DPS and EPS as much as possible. Therefore, dividend policy is very important for this foreign strategic investor.

[4] A ... the annuity payment, r ... opportunity costs, g ... the rate of growth per period, n ... the number of period for annuity

Abstract

Příspěvek se zabývá dividendovou politikou distribučních plynárenských společností v České republice. Dividendy představují jediný příjem akcionáře v průběhu držby akcie, proto je možné je charakterizovat jako kompenzaci majitelovy odložené spotřeby. Na uplatňovanou dividendovou politiku má mimo jiné vliv struktura akcionářů. Do analyzovaných společností vstoupil v první polovině roku 2002 zahraniční investor, který v šesti z osmi firem získal nadpoloviční většinu. Cílem příspěvku bylo proto určit, zda tento vstup měl vliv na vyplácené dividendy a jaké byly motivy vlastníka k případné změně dividendové politiky.

References

[1] BAKER, H., KENT, G.F., EDELMAN, R.B. A survey of management views on dividend policy. *Financial management*, 1985, pp. 78-84.

[2] BURCLEY, A., ROSS, A.S., WESTERFIELD, R.W., JAFFE, J.F. *Corporate finance Europe*. McGraw-Hill Companies, Inc., 1998.

[3] DEVEREUX, M. Taxation and cost of capital: The UK experience. *Oxford Review of Economic Policy 3*, 1987, pp. xvii-xxii.

[4] LEASE, R.C., JOHN, K., KALAY, A., LOEWENSTEIN, U., SARIG, O.H. Dividend policy – its impact on firm value. *Harvard Business School Press*, Harvard, 1999.

[5] MEEKS, G., WHITTINGTON, G. The financing of ousted companies in the UK. *Background paper to Report No. 2*, HMSO, 1976.

[6] ROUBÍČEK, L. Corporate governance – Správa a řízení společností. VŠB-TU, Ostrava, 1998.

[7] ROUBÍČKOVÁ, M. Teorie dividendové politiky, jejich kritika a interpretace. VŠB-TU, Ostrava, 1999.

IMPORTANCE OF THE CORPORATE GOVERNANCE FOR MAINTAINING THE TRUST OF INVESTORS[1]

Jindřiška Šedová[2]

Key words

corporate governance, shareholder protection, issuers' obligation to inform

1. Introduction

The trust of investors is a key factor in any successful capital market. Investors are only wiling to trade in capital market if they feel that its stability can be trusted. Setting rules ensuring a minimum risk of market failures due to which investors are losing trust is among major tasks of the Czech Securities Commission. The key risks that put investors in danger include the risk of authorized representatives and managers of a company failing, risk of a fraud, risk of an improper instrument being offered, risk of the rate of an investment instrument decreasing. The accounting scandals in the U.S. and other countries should serve as a warning for other capital markets and a call for a revision of the current habits and rules governing the accounting, auditing, rating agencies or corporate governance. Last year, the Czech Securities Commission issued a Corporate Governance Code based on the OECD principles. The code should help understand the importance of proper corporate governance as a reliable way of maintaining the investors' trust and winning more cost-efficient resources for corporate funding. The Czech Securities Commission makes every effort to make companies include in their annual reports statements on the compliance of their company governance with the Code. The Commission even has significant powers to directly enforce an important part of the rules, particularly those concerning takeover bids, reporting shares in voting rights and fulfilling the financial duties.

The paper responds to the increased attention paid by the Czech Securities Commission to the corporate governance. Next, it describes the main principles used in the Czech laws governing corporate governance.

[1] The paper is published with the support of the Czech Grant Agency (grant GAČR No. 402/02/1408 “Comparison of the Financial Markets Development in the Czech Republic and in the European Union”).

[2] Masaryk University of Brno, Faculty of Economics and Administration, Department of Law, Brno, Czech Republic. E-mail: jsedova@econ.muni.cz, phone +420-5423523272.

2. Characteristics of Corporate Governance

Principles governing the functioning of corporations were formulated more than a hundred years ago. They were the outcome of a long search for the rules of civil society, later companies.[3] By that time, the basic principles of corporate governance had already been known[4]: sound management, publicity and socialization of capital as well as separation of governance from management.

Over the last century, even if with periods of decay and stagnation, each of these development phases brought a certain improvement of both written and unwritten rules and principles of corporate governance. The development resulted in the present corporations, which, as a rule, are no longer controlled by a single owner entitled to profit and loss, authorized to replace the management or sell the corporation. Today, a corporation is mostly controlled by several stakeholders owning its shares or shares of a corporation controlling it.[5] This change has also affected the basic characteristics of the present-day corporations:

- a shareholder is entitled to a profit or loss in proportion to his or her equity share;
- a shareholder may replace the management provided that he or she has a majority vote at a general meeting or in a governance body;
- a shareholder has a right to sell his or her share;
- a small shareholder usually has no power to control the company;
- shareholders joining in investors' groups become more important. These groups are becoming significant participants in the capital market. In addition, they produce an efficient pressure within a corporation. This pressure mostly enforces publicity to ensure responsible and transparent governance, return on investments and their protection from misuse.

---

[3] Worth mentioning are the works of Jean-Jacques Rousseau, who as early as 1750 formulates the principles of a civic society. Another hundred years later, J. S. Mill formulates theoretic conclusions on the functioning of a capital market and corporate governance. His conclusion on the necessity of publishing information on investment management is true even today.

[4] We will use the term corporate governance in the sequel in conformance with the conception of J. Klírová: The task of corporate governance is to judge the business performance from a wider perspective than the executive does, that is, to consider the interests of all parties justly involved, and, towards this end, through its activities to influence the establishment of a business strategy in an effort to satisfy such interests. In: Klírová, J: Corporate governance – správa a řízení obchodních společností. Management Press, Praha 2001, s. 13. ISN 80-7261-052-X

[5] Klírová, J.: Corporate governance – správa a řízení obchodních společností. Management Press, Praha 2001, s. 10. ISN 80-7261-052-X

Due to the above changes, today, the stakeholders take a significant part in the forming of reasonable corporate governance. They can even enforce it using a number of mechanisms (selecting competent members of governance bodies, continually inspecting their activities, etc.).

Corporate governance is influenced by the legal environment, voluntary adjustment of corporations to market conditions, and, in many cases, by the marketplace itself. The following characteristics apply to the current corporate governance:

a) no uniform system of corporate governance exists. Only certain common features can be identified enabling the principles of corporate governance to be applied, after some modifications, to each model;

b) corporate governance principles have been under constant development. This development is driven by the pressure that makes every corporation adapt to changes in the environment to keep up with the market and rival corporations. The level of acceptance of the basic principles of good governance is seen as an important factor of investment decision-making;

c) the development of corporate governance is influenced by the degree of freedom guaranteed to corporate bodies by the local legislation. Familiarity with the corporate governance laws and capability to apply them is a basic requirement of governance execution. When defining the principles of corporate governance in more detail, we will take as a base the current Czech law governing the management of joint-stock companies. Thus, the basic principles of corporate governance include above all:

   - protection of stakeholders' (shareholders') rights;
   - equitable treatment of all stakeholders (shareholders);
   - role of decision-makers;
   - publicity and transparency;
   - accountability of the supervisory board.

2.1 Protection of Shareholders' Rights

Shareholder’s. rights have been defined by the OECD countries; moreover, each country including the Czech Republic includes its own shareholders' rights in the national laws and statutory instruments. The Czech legislation sets forth the following protection principles:

a) shareholders' basic rights include: secure methods of title acquirement or share transfer, timely procurement of corporate information on a regular basis, the right to take part in a general meeting, to elect directors and supervisory board members, through dividends, participation in the company's profit;

b) shareholders are entitled to sufficient information, to participate in making decisions on significant business changes (such as an amendment to rules of association or other by-laws affecting the running of a corporation, additional shares to be issued or transactions that could affect the sale potential of the company, etc.);

c) shareholders should be enabled to take an efficient part in general meetings;

d) shareholders should be in time and sufficiently informed on the date, time, venue, and agenda of a general meeting, as well as on the problems to be dealt with. Every shareholder has a right to vote either in person or by proxy;

e) the ownership structure should be made public that enables some of the shareholders to exercise more control of the corporation due to their share in the joint-stock company. The corporate bodies should work on an efficient and transparent basis. Rules for gaining control of the corporation on capital markets as well as rules for company mergers or sales of large parts of corporate assets should be clearly defined and published. These rules must provide a clear basis for the rights of investors and methods of appeal.

2.2 Equitable Treatment of All Shareholders

The current legislation is based on the assumption that the legal framework of corporate governance should create conditions for an equitable treatment of all the shareholders including foreign and small ones. All the shareholders should have the opportunity to obtain effective redress for the violation of their rights.

An important factor of the development of capital markets is that the investors are guaranteed their investment in a company being protected from misuse or ineffective treatment by managers, directors, and/or majority shareholders. The above-mentioned groups of persons may be involved in activities which are beneficial to them but to the detriment of other shareholder groups. For this reason, the Czech legislation has included a number of rules for the protection of shareholders by which:

a) shareholders with the same share type should have equal rights. Before buying shares, all shareholders should be informed as to the voting rights pertaining to particular types of shares;

b) insider trading should be strictly forbidden, as well as transactions on own account significantly to the detriment of shareholders; [6]

c) directors and members of supervisory boards should be required to provide regular reports on their personal interest in the company's transactions or in other transactions affecting the company's profit or loss.

2.3 Rights of Decision-Makers

Through statutes, the corporate governance framework should define and offer active co-operation between corporations and persons making decisions concerning job openings, national wealth and a reasonable level of sound enterprises. The following is assumed:

a) legal rules protecting the rights of decision-makers are obeyed and applied. The protection is ensured, above all, through the following acts and codes: Civil Code, Labour Code, Bankruptcy Act, Commercial Code, and others. Areas not covered by the law should be governed by mutual agreements;

b) compensation rules are set that apply to cases of non-compliance with laws protecting decision-makers;

c) mechanisms are allowed for performance enhancement through interventions by decision-makers. If decision-makers are involved in corporate management, they should be allowed access to relevant information.

2.4 Regular and Timely Publishing of Corporate Key Indicators Including Financial Statement, Performance, Ownership and Governance of Companies

Publishing certain information is a key moment of corporate monitoring and serves as a basis for the decisions made by investors and shareholders. Insufficient or unclear information may bring about capital market inefficiency, overvalued capital and bad resource allocation in society.

Information should be published for all the shareholders to receive equitable treatment. Moreover, it should be ensured that,

---

[6] Insider trading means misuse of certain internal information by top management officials for their own benefit and to the detriment of the company. Such practices are banned in the OECD countries by securities acts, and by the Civil and Penal Code.

a) all the information must be published that, when kept unpublished or distorted, could influence economic decisions of its users. For a company, this means that it is obliged to publish:

   – its financial and operation indicators;

   – its objectives;

   – majority shareholders and voting rights;

   – evaluated future risk factors;

   – information on employees and other decision-makers;

   – structure of corporate governance and in-house regulations.

b) the information is prepared, audited and published in compliance with perfect accounting and auditing standards;

c) an annual audit is made by an independent auditor so that it provides an independent and unbiased report on the company management;

d) information distribution channels allow an unbiased, timely, and cost-effective access to corporate governance information relevant for all those involved.[7]

2.5 Strategic Corporate Management and Efficient Management Monitoring by the Supervisory Board

In the Czech Republic, a two-tier system of management is used consisting of a supervisory board and a board of directors. The position of the supervisory board is based on the following principles:

– members of the supervisory board should act on the basis of good information in good faith, and in the interest of the company and its shareholders;

– decision taken by the supervisory board should be transparent for the company and its shareholders;

[7] Note: Publishing information on companies is governed by the law. The manner of its publishing is mostly given by in-house regulations of individual companies. This may account for the fact that we are often witnessing information being published late and incomplete or that access to information is difficult and costly.

- the supervisory board should make the most unbiased decisions possible so that no group of shareholders can be influenced in a way different from others;

- the decisions made by the supervisory board must comply with the current legal regulations and with the interests of decision-makers;

- the supervisory board must unconditionally fulfil several key tasks:

    - seeing to it that the corporate strategy is pursued, setting the performance objectives, monitoring the performance, envisaging major capital expenditures, acquisitions, company mergers, and splits;

    - participating in the selection, financial compensation, monitoring, and, if needed, dismissing of the key company managers;

    - supervising and rewarding the top management and directors, ensuring a transparent selection procedure for the positions of supervisory board members and directors;

    - monitoring any potential conflicts of interest within the management, supervisory board, and among the shareholders;

    - ensuring an independent audit, ensuring correct control mechanisms, particularly those controlling the risks, financial management, and compliance with the business law;

    - supervising the publishing of information and public relations:

        - in order to be able to fulfil all their duties, members of the supervisory board must have access to precise, timely, and relevant information.

3. Current Problems of Today's Corporate Governance

At present, the corporate governance is characterized by the following trends:

- the managers' powers have been cumulated so that they are no longer transparent for the owners and cannot be controlled;

- the discussion on the principles of corporate governance has become widespread. Investors in the U.S., Great Britain, in Germany, and in other countries are all facing problems with managers. Tensions in the corporate governance are not due to the specific legal environment of the Czech economy;

- electronic markets entail aggressive manipulations, shortened times for decision-making and increased risks;

- new development trends generate impulses back towards the substance of corporate governance itself. This includes looking for specific ways and creating new values;

- the importance of some corporate governance requirements is growing rapidly. The following requirements are seen as basic:

a) the strategy and control of a corporation should support social partnership between the corporation and all parties involved by law (the strategy that honours both social and business objectives will prevail);

b) the concepts of corporate governance should help maintain profitability and capability of innovations (corporations are seen as a major element of social welfare development);

c) corporate governance should be exercised with the awareness of broader responsibility for the scope and impact of business activities.

4. Sarbanes-Oxley Act in the U.S.

One of the most important acts, passed in the U.S. recently, has launched extensive reforms towards suppressing corporate and accounting frauds and improving corporate management. The principles defined by this act are expected to have profound impact in many countries of the world including the Czech Republic. Such principles are likely to penetrate the Czech environment at two different levels:

a) the new principles will be accepted also by those companies that, even if not in need of a good rating by agencies and international financial institutions, will be interested in creating such a system of management as will help them combat the most severe fraud cases;

b) the new corporate governance principles accepted as an act in the U.S.A. will, due to the size of the U.S. capital market and its influence on the world markets, serve as "best practice“ for the corporate management. These principles will have to be accepted by those Czech companies that want to

operate or are already operating worldwide and want to receive a more favourable rating by the renowned agencies:

- In the new U.S. Sarbanes-Oxley Act and in the legislative instruments approved by the American Securities Commission, new principles of corporate management are introduced[8]. The new act will provide for more strict regulations governing the following risks;

- there will be a stricter ban on personal loans granted by a company or its subsidiaries to the directors or other company officials;
- a committee is expected to be created for the audits of a given company with a duty to approve all the services provided by a company auditor;

- the provision of certain services of a non-audit nature by a company auditor along with auditing will be banned;

- officials of an audit company will only be allowed to be in charge of a single client for a maximum of 5 years;

- company executives will have to certify the correctness of annual and quarterly reports by a separate certificate;

- any company audit will have to be controlled by an independent committee for an audit consisting of external persons;

- required information provided by companies in annual reports will be extended by information on:

    - the independence and financial expertise of the members of the committee for an audit of a given company;

    - the existence of ethical rules applying to the directors and officials;

    - the participation of the management in the internal audit and its evaluation;

At least once in three years, the American Securities Commission will have to check the annual reports. This check should ensure that companies abide by the rules governing the securities market.

[8] Michael Mullen. White & Case, USA has accepted new corporate governance principles – what impact will this new situation have abroad? www.whitecase.com

The act provides a number of other mechanisms that should prevent entities from breaking laws and ensure proper financial reporting. These include above all:

- the setting up of an independent commission to supervise auditing companies, particularly auditors of those companies that are governed by American legal regulations concerning securities;

- more responsibility and punishment for company officials.

5. Conclusion

Over the last year, the Czech Securities Commission has issued a number of rules, which can be applied to minimize the risks and prevent market failures undermining the trust of investors. Since the risk of a failure of authorised representatives and corporate management, the risk of fraud and risk of an improper instrument being offered are among major risks dangerous to the investors, the Czech Securities Commission has adopted a Corporate Governance Code based on the OECD corporate governance principles. The current practice of corporations indicates that the awareness and application of corporate governance principles have not yet taken root in the Czech business environment. The paper is concerned with a concise definition of these principles. Without their knowledge, correct understanding is unthinkable of the newly adopted laws necessary to implement the EU directives requiring continuous and periodic transparency from the issuers and holders of securities accepted for trading in a regulated market. The current transparency requirements are set forth in the Council Directive 2001/34 EC. In compliance with the requirements of this directive, the Czech Securities Commission prefers in the rules adopted particularly periodic-reporting requirements and stricter requirements calling for publishing ad hoc, that is, price sensitive information.

Abstract

Příspěvek se zabývá základním vymezením principů corporate governance, z nichž vychází Kodex správy a řízení společností založený na principech OECD, který přijala Komise pro cenné papíry. Kodex má přispět k zajištění minimalizace rizika selhání trhů, zejména rizika selhání statutárních orgánů a vedení firmy, rizika podvodu a rizika nabízení nevhodného instrumentu. Znalost principů corporate governance umožňuje správné pochopení nově přijímaných zákonů, jimiž jsou implementovány direktivy EU o požadavcích průběžné a periodické transparence kladených na emitenty a držitele cenných papírů přijatých k obchodování na regulovaném trhu.
Příspěvek formuluje základní předpoklady, z nichž musí vycházet právní rámec corporate governance. Především musí vytvářet podmínky pro rovný přístup ke všem akcionářům, včetně zahraničních akcionářů i drobných akcionářů. Tím lze docílit jistoty investorů, že jejich kapitál investovaný do společnosti bude chráněný před zneužitím nebo neefektivním zacházením managery, představenstvem a většinovými akcionáři. Česká právní úprava proto zakotvila celou řadu pravidel na ochranu akcionářů. Cílem

příspěvku je vyjádřit souvztažnost mezi zvyšujícími se nároky na periodické podávání zpráv a na zveřejňování informací ad hoc, tj. cenově citlivých informací a nárůst významu uplatňování základních principů corporate governance jako důležitého faktoru rozvoje kapitálových trhů.

References

[1] KLIROVA, J. *Corporate governance (In* Czech). Praha: Management Press, 2001. ISBN 80-7261-052-X.

[2] MULLEN, M. White & Case, USA accepted new fundamentals of goverment of companies. www.whitecase.com.

[3] Current information requirement of registered securities in relation to price sensitive information (In Czech). www.sec.cz.

[4] MEDVED´, J. Principles corporate governance and a framwork of their application in the commercial banks (In Czech). In: Národohospodárský obzor. 2002, vol. 3, pp. 49-61.

PRESENT PROBLEMS OF LIFE INSURANCE IN SLOVAKIA BEFORE THE ENLARGEMENT OF THE EUROPEAN UNION

Barbora Drugdová

Key words

insurance market, insurance legislation, life insurance

1. Introduction

The Slovak insurance market is well – developed. As many as 28 commercial insurance companies, of this number 24 associated in the Association of Slovak Insurers, operated in the Slovak Republic until 31.12.2001.

Transition of the economy in Slovakia to market economy principles brought with it a collapse of a monopoly on the insurance market. Changes in the legal system, represented by Slovak National Council Act 24/1991 Zb. on the insurance industry, in the wording of subsequent amendments, the latest Act 95/2002 on the insurance industry and the attractiveness of this branch of the financial sector led to a dynamic growth of this sphere of business, which is new here.

2. Life Insurance

In the countries of the European Union, but also in other developed market economy countries (the United States, Japan, Germany), insurance is in general divided to life insurance and non-life insurance. In line with the aspirations to join the European Union, division of insurance to life and non-life insurance was also introduced in the legal system here, instead of classification as personal insurance, property insurance, and insurance of liability for damage, as defined in the Civil Code.

The term life insurance is often misrepresented for insurance of persons. Insurance of persons pertains to insurance of life or health of those insured. Insured risk can be death, accident, or disability of the insured. Life insurance is one of the types of insurance of persons. Within insurance of persons we can also distinguish non-life insurance (this involves: accident insurance, medical insurance, health insurance) and life insurance (this includes insurance for the case of death, endowment insurance, mixed insurance, and pension insurance).

Life insurance is oriented at a risk of surviving until certain age or death. The basic feature of this insurance is that the insurer will in all instances pay the benefits. The agreedupon benefit is paid when the insured survives until the date of the end of the insurance policy or the date agreed-upon in the insurance policy, or in case of a premature death. Usually, a share of the insured in surpluses from insurance or profit from investment of the finances deposited with the insurance company is agreed-upon in the form of bonuses and also an increase of insurance payments.

There are several basic types of life insurance which are offered in various modifications. However, all types ensure the payment of benefits at a time of insureased need, either directly to the insured or his/her heirs. The basic types of life insurance are: universal life insurance, endowment insurance, whole life insurance and endowment insurance (mixed insurance), retirement annuities.

For universal life insurance the insured event is the death of the insured for whatever reason. There can be various sums agreed for individual causes of death, such as a result of illness or an accident. This is often combined with endowment insurance and also accident insurance. Universal life insurance is often offered as: whole life insurance, term insurance, deferred (term) insurance. Whole life insurance provides, in case of the insured, a death benefit for the surviving relatives, or another beneficiary. This type of insurance lasts in fact until an age set by an insurance company (70 – 85 years). If the insured survives to that age, the insurance company will pay him/her the agreed-upon insurance sum and the policy thereby ceases.

In term insurance, the duration of insurance is limited to a term agreed-upon in advance. This policy provides in the case of death of the insured during the insurance term a death benefit for the authorized beneficiary or surviving relatives. If the insured survives until the end of the insurance term, the insurance ceases without any redemption.

Deferred (term) insurance is a life insurance where the payment of the benefit is deferred by a certain waiting (deferral) period. This type of policy provides insurance coverage from the moment the contract is concluded.

In the instalace of endowment insurance, an insurance company pays an agreed-upon sum if the insured survives until the end of the insurance period. Insurance will cease without compensation. This type of insurance is no longer sold in this form in business practice. Insurance companies offer it with the exception of returning the accumulated premiums to the surviving relatives in case of death of the insured in the course of insurance or this type of insurance is linked with term life insurance.

Mixed insurance is insurance in case of death and insurance for survival up to a certain age. It is a combination of the aforementioned two forms of insurance. This type of insurance may not cease without a reimbursement. An insurance company will pay the benefit either when the client survives until the end of the insurance term, or in case of death of the insured person. Insurance companies modify mixed insurance in various ways.

Retirement annuities are a certain modification of life insurance. This insurance presents a possibility of including risk of death, survival to a certain age, and disability.

Hence retirement annuities are a specific form of insurance for the case of reaching a certain age. Payment of insurance coverage is linked to life of the insured person and usually end with the death of the insured person. Decisive age for the origination of entitlement to a pension is 60 for men and 55 for women. Amount of insurance coverage in life insurance is determined by the insurance sum or its part, depending on agreed-upon insurance terms.

Insurance premium is the price for an insurance service. Factors that determine the amount of premium have an important role for the calculation of insurance premiums in life insurance. Elements that to a decisive degree influence the amount of insurance premium are above all evaluation of subjective and objective aspects of risk, or those features that can be objectively measured or quantified.

Subjective side of risk ensues from dangers that rest on the insured person himself. It has a positive or negative effect to a degree to which the insured person takes care or is careless towards preserving his/her life and to prolong his/her life. Subjective side of risk, such as care for health, is not directly expressed in premiums. In some economically developed countries, insurance companies reward verified abstainers (whether it concerns smoking or alcohol) who buy insurance by proving them discounts on premiums. For example, in the United States, smoking is taken into account in morality tables, whereby there are separate morality tables for smokers and nonsmokers. (such as Unisex Version of the 1980, Commissioners Standard Ordinary Morality Table).

Objective side of risk is represented by age of the onsured sex, marital status, occupation, hobbies environment and others. All these factors, as well as other factors, influence morality, or average length of life of the insured.

Factors that directly influence the amount of premium in life insurance include: likelihood of death or survival to a certain age, insurance term (or duration of insurance), time and form of payment of premiums, insurance sum, number of insured risks, waiting period (deferral period, period of deferral of effectiveness of insurance), number and amount of overhead surcharges, amount or profit and other surcharges, interest rate and interest.

Importance of life insurance in the national economy is rising. Life insurance is a stable component of the creation of the gross domestic product. In developed economies it is used as an active element of social policy of the state. It offers a suitable alternative to overcome problems associated with social security. It permits the insured to accumulate part of their income during their economic ectivity and in this way preclude a drop of their standard of living when income from economic activity is no longer available. The period of receiving pension is linked with a decline of the standard of living also in economically developed countries, needless to say in transforming countries, where social security systems inherited from previous regime are burdened by a high degree of social solidarity.

3. Present Problems of Life Insurance in Slovakia before the Enlargement of the European Union

Fundamental demographic changes in the Slovak Republic are causing major problems in association with a growing economic burden of the productive part of the population to support the part of the population that is no longer active in work.

Accumulation of capital and its investment is an important aspect of development of the economy. Higher savings rate as a source of capital is deemed a factor of stability of a country, on which willingness of foreign investors depends to invest on our capital market. Life insurance has a specific character based on its long-term nature and stability of terms. Therefore reserves accumulated in life insurance represent an important source of investment capital, and so help the recovery of the national economy. Its long-term nature requires a high degree of confidence between the insurer and the insured. Average insurance term in life insurance products is 15 to 20 years.

Modifications of legal norms began in the insurance indrustry and the process of harmonization of our insurance law started with community law of the European Union. These amendments are also related to life insurance. The possibilities were widened for placement of reserves into foreign securities and the possibility was introduced to provide loans to the insured in life insurance.

Development of insurance in the area of life insurance in recent years is more dynamic than in non-life insurance. The Slovak Republic is gradually getting closer to the European average on the insurance market, which is about 51 percent in favor of life insurance.

Data in Table 1 shows that the ratio of life and non-life insurance here is unsatisfactory compared with countries with developed economies, such as Japan with 78:22, United Kingdom 65:35, France 60:40.

The ratio of life and non-life insurance in the Slovak Republic was 46 : 54 as of Insurance Companies.

Commercial insurance companies active in the Slovak insurance market ranked by billed premiums in 1997, 1998, 1999 and 2000 are in Table 2.and Table 3.

An amandment to Insurance Act 95/2002, came into effect on 1st February 2002, enablig the approximation of our laws to the legal system of the EU.

The most important changes in the amendment of the law pertain to the division of newly founded insurers to life and non-life insurance companies (universal insurance companies can no longer be established), determining the amount of basic capital for individual types of insurance companies, enacting the function of an actuary, widening jurisdictions of supervisory bodies in the insurance industry, as well as access of branch offices of foreign insurance companies to the market in the Slovak Republic.

The amendment has not effected changes in the area of tax benefits linked with life insurance, as it exists in developed economies. The amendment of the insurance law does not enable citizens of Slovakia to buy insurance policies insurance companies that are not active in Slovakia, as it is in countries of the European Union. However, the law provides an exception if the required type of insurance is not provided by any local insurance company.

Finally, we can conclude that demand for non-life insurance still prevails. Interest is growing of the population as the main subject on the market in life insurance. Over the past three years life, insurance has been growing by roughly 30 percent annually.

Table 1 - Ratio of life and non - life insurance in word insurance – 2000

Country	**Ratio life and non – life in %**
Japan	**78 : 22**
United Kingdom	**70 : 30**
France	**65 : 35**

Source: Comité Européen des Assurances, Paris 2001.

Table 2 - Market share of insurance companies in the insurance market in Slovakia in life insurance by ***billed premiums***

Ran - king	Insurance Company	Market share by billed premiums in % 1999	Market share by billed premiums in % 1998	Market share by billed premiums in % 1999	Market share by billed premiums in % 2000
1	Slovenská poisťovňa	44.26	51.41	61.73	36.40
2	Amslico	16.60	13.23	10.05	18.87
3	Nationale Nederlanden	12.74	10.50	5.93	14.48
4	Kooperatíva	5.31	5.23	5.30	7.17
5	Slovenská investičná poisťovňa	4.13	6.00	7.99	-
6	Allianz	3.98	3.65	3.50	4.77
7	ERGO	3.37	2.42	1.31	3.56

8	Slovenská životná poisťovňa (od roku 1999 Kontinuita)	3.24	1.84	0.54	4.79
9	Prvá česko-slovenská poisťovňa	2.07	1.51	0.84	1.70
10	Otčina	1.48	1.98	1.79	1.48
11	Komunálna poisťovňa	0.58	0.52	0.24	0.64
12	Univerzálna banková poisťovňa	0.53	0.53	0.67	0.61
13	Hasičská poisťovňa	0.44	0.49	0.27	0.30
14	Union	0.43	0.06	0.00	0.90
15	Česká poisťovňa – Slovensko	0.27	0.28	0.17	0.34
16	Generali	0.23	0.28	0.11	0.55
17	Wüstenrot	0.19	0.01	-	0.36
18	Tatra	0.09	0.06	0.05	0.07
19	Vzájomná životná poisťovňa	0.05	-	-	0.01
20	R + V	0.01	-	-	0.03

Source: Annual Report 1998,1999,2000.

Table 3 - Market share of Insurance in the insurance market in Slovakia, total premims wreiten, life insurance and non-life insurance- 2001

Por. čís.	1.1.1.1.1.	**Total premiums wreiten**	**%**	**Total**		**Total**		
				Non-life insurance	**%**	**Motor insurance**	**Life insurance**	**%**
1.	Slovenská poisťovňa, a.s.	14 8085 699	46,48	10 188 418	56,66	1 928 351	4 620 281	33,29
2.	KOOPERATÍVA poisťovňa, a.s.	3 070 888	9,64	1 750 863	9,74	1 002 003	1 320 025	9,51
3.	Allianz poisťovňa, a.s.	2 677 853	8,41	1 987 758	11,06	1 229 235	690 095	4,97
4.	AMSLICO AIG Life	2 637 146	8,28	59 064	0,33	0	2 578 082	18,58
5.	Nationale-Nederlanden poisťovňa, a.s.	1 878 333	5,90	0	0,00	0	1 878 333	13,53
6.	UNIQA poisťovňa, a.s.	977 900	3,07	727 441	4,05	405 168	250 459	1,80
7.	Česká poisťovňa-Slovensko, a.s.	959 730	3,01	884 514	4,92	369 791	75 216	0,54
8.	ERGO, a.s.	841 211	2,64	275 728	1,53	186 540	565 483	4,07
9.	UNION, poisťovacia a.s.	799 955	2,51	617 945	3,44	137 652	182 010	1,31
10.	KONTINUITIA Slov.život.poisťovňa, a.s.	577 594	1,81	16 833	0,09	0	560 761	4,04
11.	QBE poisťovňa, a.s.	549 218	1,72	213 304	1,19	61 785	335 914	2,42
12.	Univerzálna banková poisťovňa, a.s.	420 757	1,32	297 288	1,65	141 780	123 469	0,89
13.	Generali Poisťovňa, a.s.	371 217	1,17	180 344	1,00	94 739	190 873	1,38
14.	Komunálna poisťovňa, a.s.	306 463	0,96	209 143	1,16	70 650	97 320	0,70
15.	Prvá česko-slovenská poisťovňa, a.s.	230 026	0,72	0	0,00	0	230 026	1,66

16.	R+V Poisťovňa, a.s.	228 297	0,72	151 567	0,84	44 171	76 730	0,55
17.	Poisťovňa GERLING Slovensko, a.s.	143 906	0,45	143 906	0,80	0	0	0,00
18.	Dopravná poisťovňa, a.s.	88 391	0,28	88 391	0,49	30 522	0	0,00
19.	Wüstenrot životná poisťovňa, a.s.	72 343	0,23	0	0,00	0	72 343	0,52
20.	Poisťovňa TATRA, a.s.	68 005	0,21	57 961	0,32	17 941	10 044	0,07
21.	Hasičská poisťovňa, a.s.	59 025	0,19	44 482	0,25	17 002	14 543	0,10
22.	D.A.S. poisťovňa právnej ochrany, a.s.	45 715	0,14	45 715	0,25	0	0	0,00
23.	Vzájomná životná poisťovňa, a.s.	34 190	0,11	33 478	0,19	0	712	0,01
24.	VICTORIA-VOLKSBANKEN Poisťovňa, a.s.	11 486	0,04	6 424	0,04	0	5 062	0,04
	CELKOM	**31 858 348**	**100,0**	**17 980 567**	**100,0**	**5 737 330**	**13 877 781**	**100,0**

Source: Annul Report 2001, Slovak Insurance Association.

4. Conclusion

Transition of the economy in Slovakia to market economy pinciples brought with it a collapse of a monopoly on the insurance market. Changes in the legal system, represented by Slovak National Council act 24/1991 Zb. on the insurance industry, in the wording of subsequent amendments, the letest amendment being Act 101/2000 Zb. and act 95/2002 Zb and the attractiveness of this branch of the financial sector led to a dynamic growth of this sphere of business, which is new here. In line with the aspiration to join the European Union, division of insurance to life and non life insurance was alsointroduced in the legal system here, instead of classification as personal insurance, property, and insurance of liability for dmage, as defined in the Civil Code.

In European Context there has got a big importance The European Federation of National Insurance associations CEA, which represents and supports activities of European insurance companies. The European Insurance market may be

described as the largest and most developed insurance market in the world. In connection with Slovakia preparation for admission to the European Union, legislative conditions have to be created so that approximation in this area may be achieved.

Abstract

Prechod slovenského hospodárstva na trhový princíp hospodárenia priniesol rozpad monopolu na trhu hospodárenia. Zmeny v legislatíve prezentované zákonom Slovenskej národnej rady č.24/1991 o poisťovníctve v znení neskorších noviel, posledná je novela č.101/2000 a zákon č.95/2002 a atraktívnosť tohto finančného odvetvia mali za výsledok dynamický rozvoj v tejto novej oblasti podnikania. V súvislosti so vstupom do Európskej únie v oblasti poistenia a poisťovníctva sa v Slovenskej republike zavádza členenie na životné a neživotné namiesto poistenia osôb, poistenia majetku a poistenia zodpovednosti za škody, ako je to definované v Občianskom zákonníku.
Poistný trh v Slovenskej republike sa musí neustále prispôsobovať podmienkam, ktoré sú vytvorené v oblasti poistného trhu v Európskej únii a vo vyspelom svete. V súvislosti s celoeurópskou a prípadne svetovou úrovňou je ešte v oblasti slovenského poistného trhu čo doháňať. Týka sa to predovšetkým týchto oblastí: kvalitatívnej a kvantitatívnej úrovne poistného trhu, legislatívy v tejto oblasti, neustáleho zvyšovania nových a moderných poistných produktov, ako aj daňového zvýhodnenia v oblasti životného poistenia a ďalších oblastí.

References

[1] *Comité Européen des Asurances European Insurance in Figures*. 2001.

[2] DRUGDOVA, B. *Life Insurance*. Bratislava: Biatec, 3/2001.

[3] DRUGDOVA, B. *Insurance International Risks*. Bratislava: Sprint, 2001.

[4] DRUGDOVA, B. The Slovak Insurance Market, Being a Segment of the Financial Market. In Future of Banking after the Zear 2000 in the World and in the Czech Republic. Karviná: OPF SU, 2000.

[5] KORAUŠ, A. Bankassurance – The Way to Effectivity in Banking and Insurance. In Future of Banking after the Year 2000 in the World and in the Czech Republic. Karviná: OPF SU, 2000.

[6] *Slovak Association of Insurance Companies.* Bratislava, 2000.

[7] SUTHERLAND, H. *Inflation and Its Aspects in the Life and Non-Life Insurance Market*. London: Guidldhall University, 1998.

TECHNICAL RESERVES IN NON-LIFE INSURANCE

Jarmila Šlechtová

Key words

technical reserves, reserve on unearned premium, reserve on indemnity, Chain-Ladder method, Cape Cod method, Bornhuetter-Ferguson method, separation method, reserves on non-life insurance premiums, reserves on premiums and discounts, adjustment reserves

1. Introduction

Technical reserves in non-life insurance play a major role for the insured as well as for the insurer. From the insured´s point of view, an assesment of sufficient technical reserves is necessary in order to guarantee the insurer´s liabilities based on the premium agreement. It makes payment of the claim possible from the an insured risk which may be a casual event, i.e. it cannot but may happen. It is determined by the probability of a casual event occurrence. We know that in the case of life insurance (or insurence in the case of death) the event of death happens but we do not know when.

For the insurer, it is very important to set a level of adequate technical reserves. Technical reserves represent an important part of an insurance company‘s liabilities, and these reserves account separately from other insurers´ liabilities. The economic consequences of the insurance company directly influence the level of technical reserves.

2. Technical Reserves and Legislature

The insurer creates technical reserves for life and for non-life insurance according to law. This is stated in No. 363/1999, directed at insurance companies, and which is in accordance to EU directives. We cannot mix technical reserves and non-technical reserves. In doing so, this makes the insurance company like any other entrepreneurial entity, and hence, does not use these reserves primarly to cover risks from the insurer´s activities (e.g. compulsary general reserve fund, funds form profit after taxation, legal reserves determined. for tangible property repair, reserves on the rate of exchange losses).

Assets whose source are technical reserves are subordinate also in EU countries to strict limitations governed by law (in the Czech Republic, as mentioned previously, by the implementation of the Ministry of Finance Act No. 75/2000) based

on the principles of safety, diversification, rentability and liquidity of the financial institution.

The amendment of the Act is presently being done in the Czech Republic Parliament, thus brining in changes in the case of non-life insurance technical reserves.

3. Reserves on Unearned Premiums

The reserves on unearned premiums (since law no. 363/1999 came into force) correspond to that part of the prescribed premium that relates to a future financial period. For example, the prescribed annual premium to the 1st of September in the amount of P covers the rest of the normal financial period (calendar year); in other words, only 122/365 of the year (i.e. earned premium is 122/365 * P) while the surplus 243/365 of the premium (i.e. unearned premium, 243/365 * P) is applied to the next financial year´s 243 days. It is necessary to place this amount as reserves in a normal financial year. The total amount of these reserves is put down as the sum of unearned premiums for a particular insurance contract. Dividing prescibed premiums into earned and unearned parts reflects the insurance companies´ operating system of premium billing according to the „ *pro rata*“ method.

4. Reserves on Indemnity

These reserves are significant especially for non-life insurance branches, where a time delay occurs between the claim and a completed indemnity (for example, in the case of several types of liability insurance, above all, motor vehicle liabiliity insurance). The reserves on the indemnity is apportioned to the coverage of liabilities from the claim.

There are two types of indemnity reserves:

- **RBNS** (reported but not settled);
- **IBNR** (incurred but not reported).

The RBNS reserve is mostly created from the practical aspects of a particular claim (case estimates) in the practice, when the liquidator evaluates the amount of future indemnities on his estimate based on or established by practice in the insurance company. The estimates are calculated step by step directly in the operating computer system of the insurance company. The approach to RBNS reserves should not be realized if it is not effective due to the occurrence of higher claim. The calculation of the RBNS reserves for the whole insurance branch is done simultaneously with IBNR reserves by means of the mathematical-statistical method.

The insurance company has to be prepared also for claims that already were reported for various reasons. To qualify as IBNR reserves, estimates usually respect

mathematical-statistical methods taking into consideration external factors such as inflation (for example, price increase of construction materials or car repair service prices) .

Mathematical-statistical methods used to calculate reserves on the indemnity IBNR estimates are mostly based on data made up into „run-off“ triangles. Such „triangles“ are claims paid upto a certain time divided into rows according to the time of origin and into columns according to the time of development. Annual (financial) periods are designed for simplicity, though sometimes semi-annual or quarterly run-off triangles are done because:

- the original year is most often the year the accident occurred, or it could also be the year the insurance was underwritten;
- the „development“ years are the number of years that have passed from corresponding claims: e.g. the first column“ 0 “ contains claims paid always in the year when the corresponding claims arise;
- the calendar year represents all claims in the given calendar year.

5. Cain-Ladder Method (Step-Up Method)

It arises from the presumption that the ratio of cumulative claims between consecutive years of the development stages are approximately the same as the years when the claims arose. Development coefficients are calculated for the cumulative run-off triangle . By means of these development coefficients, it is possible to complete the cumulative run-off triangle into a „square“. We obtain the final high estimate of the reserve needed at the end of the year, if we deduct the sum of the diagonal from the sum of the figures in the last column of this table. It is possible to modify this method to include inflation.

6. Cape Code Method

This method was named after the place of the actuary conference, where it was first suggested.

It includes also the loss experience, i.e. share of claims and the premium. At the same time if the rows of the run-off triangle are created by the year the claim arose (year of the inception) then the earned premium of the prescribed insurance is used. For the sake of simplicity, assuming that earned premium stays constant. In the last column the premium is arranged by means of inverse ceofficients comparable to claims from the second column of the table. The long term claims ratio is then used also for particular rows of the run-off triangle. We obtain the final estimation of the reserve by summing up the particular year where results of the claim arise. This estimation is comparable with the previous estimation of the Chain-Ladder method.

7. Bornhuetter-Ferguson Method

This is very similar to the Cape Cod method but it works with individual loss experience. The uncumulative loss experience extrapolation is shown in particular columns (e.g. for the first year of the development predictions average 0.205 of all five figures 0.192, …., 0.224, because of its comparable size). For the second year predictions average 0.264, the mean of the last two figures. Then, The loss experience is summed in the each row.

8. Separation Method

The separation method aims at the separation of the calendar effect given by placing calculations into particular diagonals. This effect considerated as the separation index which has a similar meaning to, say, the index of consumer prices. By placing them into particular columns, this effect is considered the index of delay representing indemnity divided in a particular year of development. Therefore in the begining from non-cumulative data arise which is calculated by dividing the number of insurance certificates. We can get the norm by dividing earned premiums.

Part of this method is verification if it is suitable for a given situation. For example, the data are artificially reduced or omitted, and results obtained from the reduced data are compared with the unreduced data.

9. Reserves on Non-Life Insureance Premiums

The reserves on non-life insurance premium is created by that class of insurance where the premium is set by the age (or sex) of the insured when issued. This reserve on non-life insureance is governed by the same rules as life insureance. An example is health insurance (disability insurance, insurance for medical treatment during a stay abroad, contractual medical insurance). The key rate depends on the age of insured.

10. Reserves on Premiums and Discounts

These reserves on non-life insureance are governed by the same rules as life insurance is. A reserve of this sort is created, for example, by discounts on premium payments because a client pays for a full year in advance, instead of monthly installments.

11. Adjustment Reserves

The adjustment reserves created through a previous law on equalization reserves is determined to adjust increasing costs on indemnities that arise due to fluctuations of the claim performance (i.e. the relation between indemnity and premium) as a consequence of the insurer´s desire. Such a fluctuation should not be wholly casual but rather rational due to forecasting difficulties such as climactic fluctuations, and economic cycles. In cases like these, it is desirable for the insurer to create technical reserves from surplus that arises out of long-term average premiums. Companies would be able to draw reserves from certain periods with a more favourable claim performance to make up for years with an unfavourable claim performance.

EU Directives set obkigations to create adjustment reserves only for loan insurance .75% of the adjustment reserve is transfered from technical profit accounts to loan insurence every year till it reaches the sum of the highest year value of the premium after deduction of the reinsurance (net premium) in the past five years. But in particular countries supervisory authorities prescribe the creation of this reserve (often including detailed method) on all branches of non-life insurance. For example, the creation of adjustment reserves in Germany is very strict and is prescribed for all branches of non-life insurance. Modification of variations prescribed by EU Directivies for loan insurance are applied. A German insurance company should set the adjustment reserve for given year t and branches from claim performance k_{t-1}, ……., k_{t-15} for the previous 15 years , whereby the claim performance k_t is a share of costs on the indemnity, and earned premium P_t in the year t. For majority of branches of non-life insurance, there should be adjustment reserves representing certain modifications by 4.5 multiple estimated authoritative divergence of the claim performance related to the sum of premiums, i.e. probability, that “non/pathological” casual quantity will diverge from its middle value or bigger multiple of the authoritative divergence.

The Ministry of Finance Act No. 75/2000 prescribes that adjustment reserves for branches of non-life insurance should exceed the share on total premiums with a certain minimum value (4 % or CZK 1, 000, 000 and a watched period in the next five consecutive years, or the whole period of the insurance company´s activity if it is shorter than 5 years). The annual creation of the adjustment reserves should be 3 % (but in the case of loan insurance, 12 %) of the annual net earned premium during the watched period until it reaches a certain ceiling.. This ceiling is fixed by the majority of branches to 20 % (but for loan insurance, 150 %) of the average high of the annual net earned premiums during the watched period. On the other hand, it is possible to draw from the adjustment reserves, if the loss ratio for the watched period (i.e. the share of the indemnity on the insurer´s retention including the change of reserves on the indemnity and the net earned premium for the watched period) is for the majority of branches more than 65 % (but for loan insurance, 95 %); in this case for the given year the percentage difference (e.g. over 65 %) can be drawn from the everage annual high of the net earned premium for the watched period until the ceiling of adjustment reserves is reached in any given branch. The criticism of this approach is that adjustment reserves from the insurer side is indeed considerable and discussions are underway to change this policy.

Except for the above-mentioned reserves, the Ministry of Finance can approve the creation of other reserves on non-life insurance on the basis of an insurance company´s request.

12. Conclusion

Law 363/1999 about the insurance system obliges all insurance companies to employ a responsible actuary responsibile for the creation and. assesment of reserve ceilngs, as well as managing the financial placement of technical reserves. The responsible actuary approves and confirms through his own signature the correctness of all values in a document called *Record of creation, usage and financial placement of technical reserves*. That is, each insurance company and reinsurance company are obliged to hand this record over to government authorities in charge of supervising the insurance and the supplementary pension insurance system at least twice a year by the 31st of December and by the 30th of June. The actuary has to be responsible amd very well equipped not only with good theoretical knowledge of a specialisation in financial and insurance mathematics, but he also has to have basic qualifications needed for the control and calculation of technical reserves; and lastl but not least, the insurance company is obliged to provide him regularly with comprehensive data.

Assessing ceilings of technical reserves is a responsibility of actuarial work He must tread very cautiously because the low value of technical reserves improves the economic value of an insurance company but at the same time, it should not coerce exigencies on the insured. Conversely, the high value of technical reserves reduces the economic benefits, thus reducing an insurance company´s profit and therefore, a reduction of obligatory tax payments, in the majority of cases, but may consequently be detected by the insurance company´s auditors.

Abstract

Technické rezervy v neživotním pojištění zaujímají významnou roli jak pro pojištěného, tak i pro pojistitele. Z hlediska pojištěného je stanovení dostatečné výše technických rezerv zárukou pro plnění závazků pojistitele, které vyplývají z uzavřené pojistné smlouvy. Umožňují výplatu pojistného plnění ze vzniklého pojištěného rizika, které je náhodným jevem, tj. může, ale nemusí nastat. Je tedy určen pravděpodobností výskytu náhodného jevu. V případě životního pojištění víme, že sice tento jev nastane, nevíme však kdy (jedná se pak o pojištění pro případ smrti).
Pro pojistitele pak je velmi důležité stanovit výši technických rezerv v přiměřené výši. Technické rezervy totiž představují důležitou součást pasiv každé pojišťovny a o každé z nich se účtuje odděleně od ostatních závazků pojistitele. Hospodářský výsledek pojišťovny je proto přímo ovlivňován výší technických rezerv, neboť o její hodnotu se snižuje.Aktiva, jejichž zdrojem jsou technické rezervy, podléhají i v zemích EU striktním omezením daným většinou zákonem (u nás prováděcí vyhláškou Ministerstva financí č. 75/2000 Sb.), aby skladba jejich finančního umístění splňovala zásadu bezpečnosti, diverzifikace, rentability a likvidity.

References

[1] CIPRA, T. *Pojistná matematika teorie a praxe.*, Praha: Ekopress, s.r.o., 1999, ISBN 80-86119-17-3.

[2] CIPRA, T. *Kapitálová přiměřenost ve financích a solventnost v pojišťovnictví.*, Praha: Ekopress, s.r.o., 2002, ISBN 80-86119-50-8.

[3] http://www.cap.cz/

FINANCIAL ANALYSIS OF ALLIANZ GROUP IN SLOVAKIA AND IN THE CZECH REPUBLIC

Eva Kafková

Katarína Radvanská

Magdaléna Karchová

Key words

financial analysis, insurance company, financial power, Allianz Group, performance indicators, balance sheet, loss and profit statement, liquidity, profitability, rating

1. Introduction

The financial situation is one of the key factors influencing company's position on the market. In free economy it has the biggest influence on creating corporate image connected with external and internal environment of the company.

The role of financial analysis is to define, which factors and to what level have taken part in creating corporate financial situation. That requires creating systematization and identifying the performance of these factors. According to such system the factors can be divided into two basic categories - external and internal. The external factors are represented by the constant measures and regulations (tax, monetary, customs and other government policies) which the company cannot influence. The second category – internal factors – can be managed by corporate management and they have arbitrary nature. They can be further divided into quantitative and qualitative ones.

The financial analysis focused on recognizing factors influencing corporate financial situation is very useful and efficient diagnostic means allowing evaluation of financial soundness of a company. Then it enables to discover the strengths and weaknesses of a company and to introduce such arrangements leading to improvement of economic corporate stability in the future. In practice two types of financial analysis e.g. "ex post" and "ex ante" should be applied simultaneously.

The purpose of financial analysis as the final phase of overall accounting process is to determine financial situation and efficiency of a company. It is aimed at recognizing such factors and their intensity that created financial situation of a company.

The financial situation of a company is defined as financial health or sound business in Anglo – Saxon literature. Sound business is a company that is capable to fulfil its goals at present as well as in future under changeable conditions.

The financial analysis as the base of financial decision – making fulfils its important role not only in producing firms but in all organizations and institutions that operate on financial market e.g. banks, insurance companies, saving companies, institutional investments etc.

2. Financial Analysis of an Insurance Company

The some basic directory used for financial analysis of a company can be applied for financial analysis of insurance companies. The certain modification is needed due to unique character of insurance activities. It results from the fact that, most firms except insurance industry can estimate their costs almost exactly before pricing their products. The insurance companies must fix prices without knowing accurate costs included in offered services. The second difference is that an insurance company must manage its portfolio and investment performance. This is the only way how to achieve its goals and fulfil the requirements of controller e.g. insurance supervision. Both mentioned portfolios are exposed to risk. Portfolio performance is influenced by the risk of loss occurrence that cannot be predicted. The investment portfolio depends on capital market fluctuation and on personal mistakes in investment decision – making.

The third aspect being considered lies in the differences in accounting system of insurance companies and other companies. Insurance accounting varies basically (for example in technical reserves of insurance business) and in detail (e.g. special account abilities of insurance business) from accounting of other businesses.

The further development of Slovak insurance market is contingent on application of the financial analysis that includes evaluation of financial situation of a company in the past, present and forecasts its future development. Its aim is to identify any weakness of sound business that could lead to future financial difficulties and to determine its strength that can be exploited in future.

At present within financial analysis there are generally used indicators of financial analysis such as premium analysis (premium income and written premium), commercial analysis (advertising of insurance policy), analysis of insurance indemnity , analysis of insurance event development rates and cost analysis, resp. economy analyses used in other business units such as liquidity evaluation, cash – flow, assets turnover, indebtedness, commercial value and profit ability ratio.

3. Financial Power Evaluation of Selected Insurance Companies

Financial analysis was carried by output indicators balance sheet ratio, and asset and liability statement, liquidity and profit ability ratio, and analysis of investment activity via index analysis, and method of comparing current condition with the condition of all indicators in previous period.

The financial analysis has been used in the subsidiaries of insurance company Allianz:

- Allianz poisťovňa, a.s., in Slovakia;
- Allianz pojišťovna, a.s. in Czech Republic.

This selection has been applied considering the fact, that Allianz Group belongs to insurance and financial giants in the world.

3.1 Allianz Group

At present Allianz Group through its subsidiaries, outlets and syndicates is active in 70 countries and employs almost 180 000 employees. Allianz Group administered assets of EUR 1 172 billion by December 31st, 2001. Total gross written premium reached EUR 75,1 billion representing annual increase by 9,4 %.

3.2 Allianz poisťovňa, a.s., the Slovak Republic

Allianz poisťovňa,a.s. subsidiary of a holding company Allianz AG Munich and a member of Allianz Group began to offer its services on Slovak market on 1st December 1993 by setting up its business representation in Bratislava. New limited company was established by agreement of Board of directors and Supervisory board in June 14th, 1996. Since 1st January 1997 Allianz poisťovňa, a.s. , as 100 % subsidiary of Munich Group has been active in Slovakia merged with Slovenská poisťovňa, a.s. (january 2003).

3.3 Allianz pojišťovna, a.s., the Czech Republic

Allianz pojišťovna, a.s., is a 100 % subsidiary of leading international insurance holding Allianz AG. It commenced its activities on the Czech insurance market on January 1st, 1993 and since then as universal insurer it has had an acces to capital and know – how of the holding group. The AA+ rating awarded to the shareholder by Standard & Poor's provides further proof of the financial stability of the entire group.

3.4 Performance Indicators

The analysis has been done in all above mentioned subsidiaries of Allianz Group from these performance indicators:

1. the volume and increase at written premiums;
2. reported insurance events, indemnity payment and their costs;
3. economic result.

The results are shown in Table 1 as follows.

Written Premiums

The sum of accounting premiums of a certain risk or class.

Insurance Events

Such events that affected insurance matters, insurance interests or insured persons and at the same time they are the events nobody knows, if they may happen, when they may appear and how great loss they may cause.

Indemnity Costs

The costs providing indemnity after occurrence of insurance event under agreed conditions in insurance policy.

Table 1 - Development of Written Premiums, Reported Events and Indemnity in Allianz poisťovňa, a.s., in years 1999 – 2001

Indicator	1999	2000	$I_{2000/1999}$	2001	$I_{2001/2000}$
Development of Written Premiums in Allianz poisťovňa, a.s.					
Non-life Insurance in million Sk	1 461	1 479	1,0123	1 988	1,3442
Life insurance in million Sk	332	542	1,6325	690	1,2731
Total written premiums in million Sk	1 793	2 021	1,1272	2 678	1,3251
Reported Events and Indemnity in poisťovňa Allianz, a.s.					
Reported Events in pieces	32 621	33 964	1,0412	41 281	1,2154
Indemnity in pieces	31 153	34 387	1,1038	38 908	1,1315
Indemnity Costs Cleared in thousands Sk					
Life Insurance	51 086	61 317	1,2003	77 454	1,2632
Non-life Insurance	609 908	557 331	0,9138	778 168	1,3962
Total Costs	660 994	618 648	0,9359	855 622	1,3831

Source: Annual Reports of Allianz poisťovňa, a.s. , years 1999, 2000 and 2001.

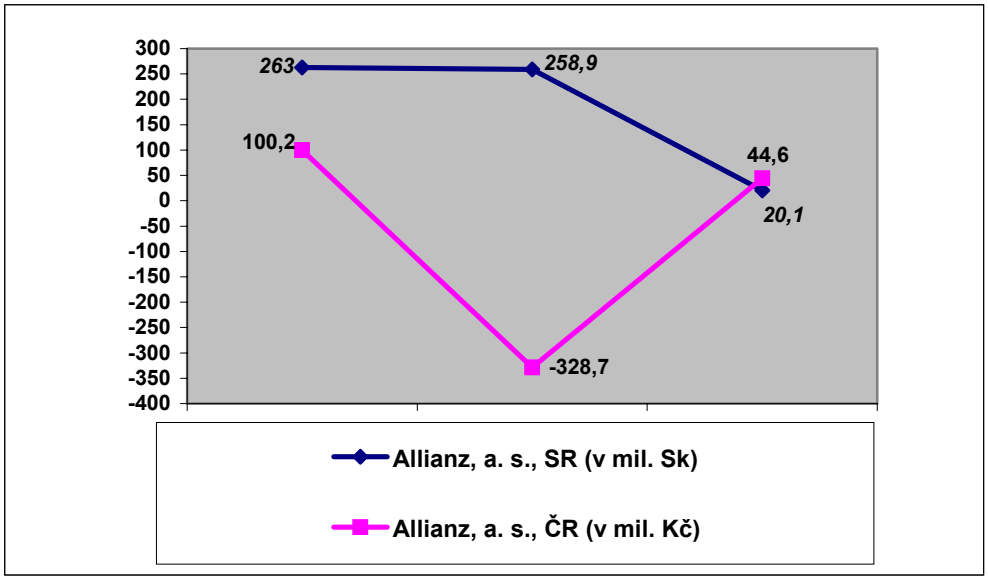
Table 2 - Development of Written Premiums, Reported Events and Indemnity in Allianz pojišťovna, a.s., in years 1999 – 2001

Indicator	1999	2000	$I_{2000/1999}$	2001	$I_{2001/2000}$
Development of Written Premiums in Allianz pojišťovna, a.s.					
Non-life Insurance in million Kč	2 594	5 213	2,0096	6 079	1,1661
Life insurance in million Kč	645	1 040	1,6124	1 198	1,1519
Total written premiums in million Kč	3 239	6 253	1,9305	7 277	1,1638
Reported Events and Indemnity in pojišťovna Allianz, a.s.					
Reported Events in pieces	x	x	x	x	x
Indemnity in pieces	x	x	x	x	x
Indemnity Costs Cleared in thousands Kč					
Life Insurance	108 032	120 905	1,1192	182 891	1,5127
Non-life Insurance	983 676	1 764 105	1,7934	2 145 980	1,2165
Total Costs	1 091 708	1 885 010	1,7267	2 328 871	1,2355

Source: Annual Reports of Allianz poisťovňa, a.s. , years 1999, 2000 and 2001.

The speed of written premiums development in these subsidiaries reached recommended levels expressed by the range <-10;30>. The development of these indicators shows relatively balanced trend (the considerable decrease in growing written premiums was marked in Slovakia in 2001). The biggest increase of non-life insurance indemnity was in the year 2001.

Figure 1 – Development of Economic Results of Allianz insurance companies in years 1999 – 2000 (Protit after Taxation)



Source: Annual Reports of Allianz Insurance Companies Years 1999, 2000 and 2001.

3.5 Analysis of Balance Sheet and Loss and Profit Statement

We have analysed these basic indicators from the analysis of balance sheet and loss and profit statement, that can be calculated from simplified statements published in annual reports. They are:

- **Investment rate in total assets**
  (investments*100)/sum of assets
  Recommended value*: *not given*

- **Asset leverage**
  (average investments*100)/net earned premiums
  Recommended value: the higher, the better

- **Reserve ratio**
  (average technical reserves*100)/net earned premiums
  Recommended value: 100 – 150 %

- **Investment volume**
  (investments*100)/technical reserves
  Recommended value: more than 100 %

- **Solvency ratio**

  (average net worth*100)/net earned premiums

  Recommended value: 30 – 50 %

- **Technical coverage ratio**

  [(average net worth +average TR)*100]/net earned premiums

  Recommended value: 150 %

- **Ratio of technical reserves and net worth**

  (technical reserves*100)/net worth

  Recommended value: less than 350 %

- **Annual increase of prescribed premium** it is calculated separately for life and non-life insurance.

  [(written gross premium t_1 – written gross premium t_0)*100]/written gross premium t_0

  Recommended value: up – 10 to 30 %

[*] *Source: Standard & Poor´s.*

Table 3 - Development of analysed indicators of Allianz AG subsidiaries

Indicator	Allianz poisťovňa, a.s. SR			Allianz pojišťovna, a.s. ČR		
	1999	**2000**	**2001**	**1999**	**2000**	**2001**
Annual increase of premiums in non-life insurance	11,80	1,23	34,38	18,44	100,93	16,62
Annual increase of premiums in life insurance	37,80	63,13	27,42	45,49	61,37	15,18
Asset leverage	133,42	154,02	150,27	116,76	93,90	155,90
Reserve ratio	100,79	115,16	110,38	**96,71**	**93,43**	113,61
Solvency ratio	33,20	43,74	46,41	**20,02**	**16,78**	**25,36**
Technical coverage ratio	**133,90**	158,90	156,79	**116,74**	**110,20**	**138,96**
Investments / Assets	79,55	79,17	72,87	66,94	58,34	71,52
Investments / TR	134,46	133,17	138,59	129,44	**84,95**	112,00
TR / net worth	286,60	247,13	230,65	**424,15**	**669,62**	**356,81**

Source: Annual reports of subsidiaries, 1999 – 2001, and own calculations.

The data in Figure 3 show, that recommended indicators are not fulfilled in cases marked by thick numbers.

3.6 Analysis of Liquidity and Profitability

The confidential statement of financial situation of an insurance company, can be obtained by the analysis of its solvency. The level of liquidity and profitability of holding group Allianz as well as the development of written premium per one employee in the years 1999 – 2001 are shown in Table 4.

Table 4 - Development of analysed indicators of Allianz AG subsidiaries

Indicator	Allianz poisťovňa, a.s. SR			Allianz pojišťovna, a.s. ČR			Standard & Poor's
	1999	2000	2001	1999	2000	2001	
TR / liquidity funds in %	**105,80**	**153,40**	**195,60**	74,44	116,53	90,82	<100 %
Liabilities / liquidity funds in %	8,50	10,20	59,50	13,74	12,13	8,91	not given
ROA = PaT / Assets in %	9,05	7,22	0,40	2,06	- 4,82	0,47	not given
ROE = PaT / net worth in %	43,85	29,99	**1,79**	16,88	**- 46,97**	**2,63**	> 5 %
Written premiums / No of employees in milllion	6,95 Sk	6,50 Sk	7,07 Sk	4,99 Kč	9,36 Kč	9,86 Kč	higher

Source: Own calculations based on annual reports of Allianz during the years 1999 – 2001.

TR – technical reserves
PaT – profit after taxation

The data in Figure 4 show, that recommended indicators are not fulfilled in cases marked by thick numbers.

4. Conclusion

Despite high resemblance of certain national market Allianz subsidiaries have not achieved recommended standards according to Standard & Poor's rating. This standard varieties could be caused by unfavourable conditions, that appeared on one national market and did not arise in others. Generally stated the financial situation is basically the same in mentioned countries. The Allianz subsidiaries have achieved leading position on these markets for several years and also have had superiority of non-life insurance over life-insurance. They do not differ greatly in the types of offered insurance products. These companies follow new trend – the development of insurance

activities via internet, that has become an unavoidable means of managers. Allianz Group and its subsidiaries have been aware of the importance of information and communication systems and therefore they try to approach their clients on-line.

The Allianz Group subsidiaries represent strong and stable insurance companies on these national markets. They have kept leading position on given markets. It is evident, that new subsidiaries have co-ordinated conditions and requirements of certain national markets with know-how of the parent company.

Abstract

Príspevok poskytuje základné informácie o finančnej analýze poisťovní a podáva komparáciu finančnej analýzy dcérskych spoločnosti Allianz Group na Slovensku a v Čechách.
Finančná analýza je realizovaná prostredníctvom výkonových ukazovateľov, údajov súvahy a výkazu ziskov a strát a analýzy likvidity a rentability. Dosiahnuté výsledky sú konfrontované s odporúčanými hodnotami ratingovej agentúry Standard & Poor' s.

References

[1] CIPRA, T. Capital *Adequacy in Finance and Solvency in Insurance Industry*. Praha: Ekopress, 2002, p. 271. ISBN 80-86119-54-8.

[2] G. and I. M. TUTT. *Financial aspects of life business*. Cambridge: The Burlington Press, 1987. Study course. The CII Tuition Service.

[3] HOLYOAKE, I., WEIPERS, B. Insurance 4TH edition, Canperbury, Kent, p. 344. ISBN 0-85297-555-4.

[4] Insurance, 2001, Polish Chamber of Insurance. Warszawa: Edytor. S. A, 2001, p. 131. ISBN 83-88412-01-9.

[5] KAFKOVÁ, E. Creation, Importance and Possibilities of Mathematical Statistic Methods Application in Calculation of Technical Reserves in Non-Life Insurance. In *Slovak Insurance Journal*, no. 1, SAP 2000.

[6] KAFKOVÁ, E. The Process of Creation and Usage of Insurance Technical Reserves in the Period of Integration into the European Union. In National and Regional Economy. Košice: Olympia, 1999. ISBN 80-7099-455-X.

[7] KRÁLIKOVÁ, R. – LUMNITZER, E. Sustainable Development and Security of Production, ENVIRAUTOM 2/99-1/2000, Košice, pp. 86 – 89.

[8] MILEVSKY, M. A., GOTTESMAN, A. A. Insurance Logic. *Risk Management Strategies for Canadians*. Toronto: Stoddart, 2002, p. 229. ISBN 0-7737-3326-4.

[9] VARCHOLOVÁ, T. Manazerska analýza. Bratislava: *Ekonóm*, 2001, p. 175. ISBN 80-225-1478-0.

[10] http://www.allianz.cz/

[11] http://www.allianz.sk/

[12] http://www.uft.sk/

INVESTMENT OF PENSION FUNDS IN THE CZECH REPUBLIC

Petra Růčková[1]

Key words

pension fund, investment, portfolio of pension fund, revenues

1. Introduction

The extent of this discussion deals with the question of reform of the pension system. This problem is perceptible not only in the Czech Republic, but also in all of Europe. The reason for emphatic changes in the pension system are evident. First is its demographic development, because in the Czech republic since 1994 there has been a reduction in population, but a growth in population of those older than 60 years. In this respect we in Central Europe are sorting out this problem with Estonia and Lithuania. A second reason is a running indebted financing system. A deficit in the pension system is roughly 1 % of the domestic product yearly and it is assumed that in the year 2020 it would be roughly 3 % GDP yearly. These figures are considered as pivotal.

To solve the situation, we must create a three-pillar financial system:

1. a state guaranteeing pension pillar;
2. collective pension funds pillar (most often offered by employer);
3. a pension administration pillar, pursuant to each particular rider.

The pillars of the pension scheme are distinguished from each other by the different ways of financing. The first pillar is financed mainly through allowances of the insured from an economically active population and repaid to citizens accepting pension contribution in the same year. The difference between income and expenditure is compensated from the government budget. The second pillar is financed mainly from the fund system or a system of accruals. This pillar is strictly direct, and monetary incomes are paid from the accumulated sum drawn from an account of allowances achieved through the investment of the pensioner's savings on the capital market after reaching retirement age. This pillar is provided by collective funds and in several countries this system is obligatory or almost obligatory. The third pillar is based on a commercial base in the form of private voluntary pensions and additional insurance or company

[1] Silesian University, School of Business Administration, Department of Finance. Karvina, Czech Republic. E-mail: ruckova@opf.slu.cz, 596 398 336.

insurance. The selection of insurance depends on the individual decision of each of the insured.

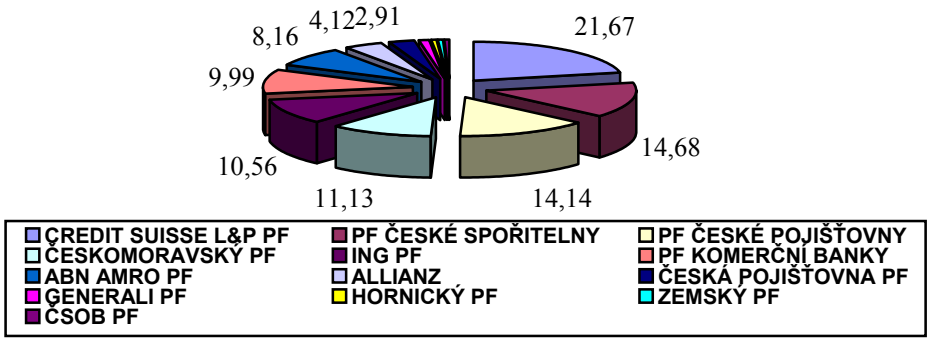
2. Czech Pension System

Pension funds existed in the Czech republic since 1994 and the basic product is the additional pension insurance from government or state contribution. This additional insurance is based on the participant´s allowances and his future demands. The social character of this additional insurance is based on profit distribution, type of contributions as well as by way of support.

The pension scheme in the Czech republic is based on the first and third pillar. In other words, the first pillar – the basic obligatory system of the pension insurance on the principle of solidarity whose financing is continuous; and the third pillar – the voluntary pension system of additional insurance with state contribution, based on individual savings and capital financing. The voluntary pension additional insurance is provided by pension funds, whose basic function is not only repaying pensions upon retirement, but also allocating the resources within the system.

There are 13 pension funds operating from the original 46 and it is expected to fall in number. 2,6 million inhabitants save up in terms of these pension funds and funds manage approximately 63,4 billion CZK. Figure 1 shows the pension insurance market and the diversification between the particular pension funds (according to the number of participants).

Figure 1 - Market of additional pension insurance with state contribution according to the number of persons participating



Source: Association of pension funds in the Czech Republic.

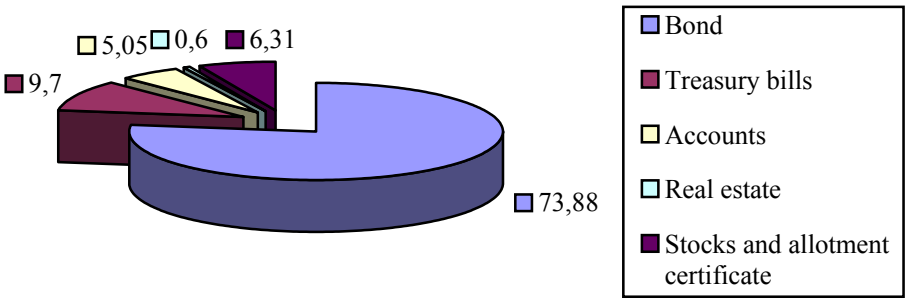
3. Portfolio of Pension Funds in the Czech Republic

From previous results, there has been a relatively significant quantity of financial resources accumulated in pension funds not only in the Czech Republic, but also abroad. The position of pension funds is very significant in relation to the capital market. Pension funds are regarded as the biggest institutional investors especially abroad. Pension funds are building-up into as similar position in the Czech Republic.

The law states that pension funds in the Czech republic are allowed to be invested only in government securities, bank obligations, public negotiable bonds of trading companies, public negotiable shares, and allotment certificates (which must be negotiated on the Prague Stock Exchange), or other investments with continual yield. There is a law determining the diversification of risk, that the value of of one issuer´s securities (except government securities) must not create more than 10 % of the pension funds' property, further, pension funds property must not be more than 20 % of the total service bond value of securities issued, and the value of real estate must not create more than 5 % of the funds' property.

Today, the majority of pension funds´ resources is invested in bonds, whereby these funds have placed about 74 % of their resources destined for investment. Treasury bills represent almost 10 % in the pension funds portfolio in the Czech Republic. This situation is shown in Figure 2, where it is also evident that the next portfolio distribution of pension funds is in the Czech Republic.

Figure 2 - Constitution of pension funds portfolio in the Czech republic in the year 2002



Source: Association of pension funds in the Czech Republic.

More detailed partition of separate pension funds´ portfolio in the Czech Republic is perceptible from table 1. This table also confirms the common partition of the pension market portfolio. It is possible to say, that bonds form the most significant group in all funds. The partition of resources among treasury bills, shares and bank accounts differs according to the investment strategy of pension funds.

Table 1 - Constitution of pension funds´ portfolio in the Czech Republic in %

Name of pension fund	Bonds	Treasury bills	Stocks allotment certificates	Real estate	Accounts
ALLIANZ PF	83.6	7.7	0.4	0.0	7.3
ANB AMRO PF	86.2	1.8	5.4	0.0	1.9
CREDIT SUISSE L&P PF	49.1	2.0	6.0	0.0	11.8
ČESKOMORAVSKÝ PF	79.7	0.0	14.7	0.0	4.0
ČSOB PF	81.8	6.6	7.3	0.0	3.3
GENERALI PF	88.3	4.2	4.6	0.0	0.6
HORNICKÝ PF	90.7	0.0	3.8	0.0	2.7
ING PF	80.7	6.4	7.4	0.0	4.6
PF ČESKÉ POJIŠŤOVNY	90.2	0.0	2.1	0.0	5.2
PF ČESKÉ SPOŘITELNY	81.1	4.6	5.8	1.0	6.9
PF KOMERČNÍ BANKY	65.1	15.8	7.1	3.1	6.6
ZEMSKÝ PF	81.2	0.0	6.7	0.0	11.2

Sources: Association of pension funds in the Czech Republic.

An equally important factor is the depreciation of investment financial resources. From Table 2, results show that there is a depreciation of pension fund resources. This could be tied up with exhausted resources on the capital market, and also the general trend of depreciation of used assets.

Table 2 - Revenues of pension funds in separate years in %

Name of pension fund	Revenues					
	1997	**1998**	**1999**	**2000**	**2001**	**2002**
ALLIANZ PF	8.90	9.10	6.00	3.80	4.36	3.71
ANB AMRO PF	10.10	8.90	5.60	3.95	4.10	3.50
CREDIT SUISSE L&P PF	11.20	10.10	6.50	4.10	4.25	3.41
ČESKOMORAVSKÝ PF	10.30	10.02	6.10	4.20	3.20	3.00
ČSOB PF	8.00	10.90	7.70	5.62	3.90	4.26
GENERALI PF	14.60	11.40	5.30	3.60	4.60	4.10
HORNICKÝ PF	7.84	7.70	4.41	2.04	2.37	3.24
ING PF	11.00	9.3	6.00	4.40	4.80	4.00
PF ČESKÉ POJIŠŤOVNY	9.60	9.72	6.60	4.50	3.80	3.20
PF ČESKÉ SPOŘITELNY	9.05	8.33	4.40	4.20	3.81	3.50
PF KOMERČNÍ BANKY	9.10	9.50	7.20	4.89	4.40	4.63
ZEMSKÝ PF	7.00	7.00	7.00	5.01	4.60	4.11

Source: Association of pension funds in the Czech Republic.

4. Conclusion

Pension funds represent the voluntary pillar of the pension system in the Czech Republic. However, there exists a large quantity of financial resources that has to be invested. Due to social aspects, the law determines how to place resources of pension funds. It is possible to say that the pension funds portfolio corresponds to specified regulations in the Czech Republic. The negative phenomenon is the continuous depreciation of pension fund resources in the coming years.

Abstract

Příspěvek se zabývá investováním prostředků penzijních fondů v České republice. V první části se zabývá penzijním systémem obecně a ve druhé části penzijním systémem v České republice. Ve třetí části je konstatováno, že v sektoru penzijních fondů je naakumulováno velké množství dočasně volných peněžních prostředků, které mohou být investováno a proto se tato část zabývá portfoliem penzijních fondů a také výnosy, které plynou účastníkům penzijního připojištění.

References

[1] RŮČKOVÁ, P. Financování důchodového zabezpečení**.** *Disertační práce*, Ostrava: VŠB-TU, 1999.

[2] www.apfcr.cz

[3] www.finance.cz

OPERATION OF SLOVAK UCITS AFTER THE 2003 COLLECTIVE INVESTMENT ACT REVISION

Branislav Mikovíny

Peter Krištofík[1]

Key words

collective investment, fund industry, UCITS, Slovak funds, regulatory framework, EU accession, legislation

1. Introduction

Fund industry seems to be the most popular sector on the Slovak market associated with the households´ savings allocation. Unlike most equity funds affected by the global stock markets showing flat or declining picture because of downturn in 2000-2002, Poland, Hungary, Czech Republic and Slovakia are heading through rapidly

Table 1 - Selected indicators of Slovak fund industry in 2001-2002

Indicator	2001	2002
Depositaries	8	8
Domiciled AMCs	9	8 (+2)
Foreign AMCs	9	9
Foreign funds	73	93
Domiciled funds	89	96
:Closed-end funds	*35*	*43*
:Open-end funds	*54*	*53*
Net Assets Value (NAV) of open-end funds (mSKK)	7 800	16 000
:Domiciled funds(mSKK)	*6 200*	*14 300*
:Foreign funds (net sales in Slovakia, mSKK)	*1 600*	*1 700*
NAV of closed-end funds (mSKK)	1 800	1 900
NAV of Restitution Investment Fund (mSKK)	3 200	-

Source: [1], [2], [3], [4] and [5].

[1] M. Bel University, Faculty of Finance, Department of Corporate Finance. Banská Bystrica, Slovak Republic. E-mail: branislav.mikoviny@umb.sk; peter.kristofik@umb.sk. Phone: +421 48 446 64 12.

growing interest in open-end collective investment schemes. The key reasons are attractive rate of return, wide range of products, bank interests cuts and long-running awareness campaign done by asset management companies (AMCs).

Domiciled funds have seemed very strong on net sales boosting the value of assets by 84 % to SKK 26 billion since end-2002. Measuring by y/y percentage change in US Dollars Slovak market increased by 179 % in 2002, compared to those in Czech Republic and Poland (+80 %) or Hungary gaining 66 %. A number of funds rose by 26 % in the last year, compared to 85 % growth one year before. Bond and money market funds still dominate the market with a cumulative market share of 70-80 % either in net sales or total assets under management. Equity funds continue to perform badly in longer period (i.e. 3-5 Y) lacking Slovak investors not willing to keep their profits in a negative territory (see Table 2). Though equity sector may slightly recover, analysts are careful in forecasting future pick-ups in the next months.

Table 2 - Breakdown of funds by asset class at May and September 2003

Asset Class	May 2003	Sept 2003
Bond funds	42 %	47 %
MM funds	31 %	35 %
Balanced funds and Master funds	21 %	14 %
Equity funds	6 %	4 %
Total	**100 %**	**100 %**

Source: [1], [2], [3], [4] and [5].

Funds operated by the major banks perform well and strengthen their position on the market against non-banking AMCs which lost their market share (Prvá penzijná) or simply decided to leave the market (Veritas, J&T AM).

Table 3 - Market share of Asset Management Companies

Assets under management (open-end funds only)	2000	2001	2002	May 2003
Tatra Asset Management	44 %	37 %	32 %	32 %
VÚB Asset Management	6 %	5 %	11 %	16 %
AM Slovenskej sporiteľne	-	1 %	17 %	22 %
J&T Asset Management	3 %	3 %	10 %	6 %
Prvá penzijná	36 %	25 %	12 %	8 %
Top foreign fund *(Net sales in Slovakia)*	8 % (Veritas)	n	4 % (WIOF)	4 % (KBC)
Others	3 %	19 %	14 %	12 %
Total	**100 %**	**100 %**	**100 %**	**100 %**

Source: [1], [2], [3], [4] and [5].

Additionally, it can be noticed that our market amounts only to 1/6 of the Czech funds, which is the second smallest market among V-4 countries. We lag behind the neighbouring countries approx. 1-2 years. Just one example: guaranteed/capital protected funds were not offered to our investors until September 2003. Despite the considerable growth on all V-4 markets, now totalling about EUR 15,5 billion in assets under management, such playground can only be compared with the smallest European countries like Finland or Norway.

Overall equity trading recorded 6-month increase since Q1 this year (Aug 2003; 1 Y change; local currency: MSCI World-DJIA-S&P 500: + 5 %; NASDAQ: + 24 %; MSCI Europe: + 5 %; MSCI Pacific: + 6 %; MSCI Latin America: + 28 %, MSCI Europe Emerging markets: + 510 %, but Euro Stoxx 50, DAX a FTSE 100 seen in red figures) and most of equity/balanced funds have joined the club of gainers – at least for a while.

Popularity of financial products, or let say the ways savings are used for investments, is determined by rate of return, investor protection and expectations laymen and professionals might have. Apart from profitability following two considerations are directly affected by the regulatory framework. Doubtful expectations of people come out of criticized and glorified tax reform and pension scheme reform. These two major social changes will sooner or later define our future income for the next decades. Because of sharp reforms savers may overlook new legislation proposal for a new Act on Collective Investment. However, it is worth couple of words as it extends the investor protection and the range of instruments mutual fund can invest in since next year.

2. Major Considerations

The Act No. 385/1999 Coll. is in force since January 2000. It has started the long-lasting process of revising the legal framework for financial services that has not yet been completed. Slovakia was initially prompted by OECD membership criteria and latter EU negotiations. Some acts did not stay alive till present, such as the Act on Financial Market Authority or the Stock Exchange Act, to mention some of them. Fund industry will be governed by a new act after four amendments. Main reason is to transpose the requirements from the 107/2001/EC a 108/2001/EC directives amending 1985 UCITS Directive. The EU implementation deadline, February 2004, is coming nearer every day. Besides this, new act also aims to increase investor protection and the supervisory competences of the regulator.

Even after the changes Slovak legislation stipulates the one and only legal form - contractual mutual funds without a status of separate legal entities operated and managed by the asset management company. AMC must be established as a joint-stock company. Neither trusts nor corporate forms are allowed. In return, a foreign fund may operate on the Slovak market if it was given the authorization in its home country without any further detailed stipulations regardless of the legal status.

Legal form of foreign funds established in Luxembourg, Belgium, Ireland, Germany, Austria or Czech Republic, which are now offered to Slovaks, differs from

one country to another (see Table 4 that breaks down legal forms). If SICAV, Plc., GmbH or trusts prove more competitive because of the tax matters or regulatory arbitrage, we may soon witness Slovak fund managers doing "round-trips", i.e. the funds registered abroad by a national promoter with the aim of selling them back into his own country. Another alternative is our fund managers will refer Slovakia to the European Court of Justice and start infringement proceeding for unequal treatment.

Table 4 - Legal forms: comparison of domiciled and foreign funds

Asset Management Co./Funds	Legal form	Separation of AMC´s assets and fund´s assets	Legal status of the funds
Domiciled AMCs	Joint-stock Co.	Y	N
ŽB Trust (Czech Rep.)	Joint-stock Co.	Y	N
Capital Invest (Austria)	LLC	Y	N
Volksbank (Austria)	LLC	Y	N
Veritas (Germany)	LLC	Y	N
KBC (Belgium, Luxembourg)	Joint-stock Co.	N	Y
WIOF (Luxembourg)	Joint-stock Co.	N	Y
Pioneer Investments (Ireland)	LLC	N	Y

Source: [18].

While adopting new act, fund managers will be given a chance of a lifetime. Contrary to current status quo, Slovak AMCs can extend its scope of service. They will be offered a chance to provide portfolio management on account of other AMCs, pension funds, other licensed financial institutions and individual investors as well as investment advice or fund-related custody services. Such investment services were only assigned to stock brokerage firms until now. Managing portfolios on someone else's account will facilitate the run-up of Pension Asset Management Companies. They will create the second, mandatory pillar of social security system as an alternative to state-owned Social Insurance Company. Though running on the same principles like collective investment funds, these providers have to be newly-registered companies. Nevertheless, any financial institution leaving the clients´ assets to be in care of someone else, is fully responsible for any damages resulting form misconduct or fraud.

Via extending the scope of provided services some more requirements will be applied for AMCs. Investment services will be fully separated with a Chinese wall from the core business, i.e. funds management and operation. Therefore additional duties like capital adequacy criteria, part-consolidated supervision and contributions paid to Investment Guarantee Fund (which is recently created Slovak compensation scheme as a mirror image of bank accounts protection) must be implemented for such providers. Fund management is necessarily associated with the fund administration comprising accounting, legal advice, property evaluation, income distribution etc. Such activities can be fully outsourced and left for professionals as it is common in the rest of the world.

Another point is elimination of competitive disadvantages in administration fee limits applied for domiciled funds. The maximum limit of 3 % or 4 % respectively will be dropped. It has neither reached maximum levels in the past, nor it can be expected in the times of growing competition. Upper limits for entry and exit fees were maintained (max. 5 % individually or in total). From January onwards unitholder will be provided with the simplified prospectus containing all relevant data. Doubling important information mentioned in the prospectus and fund rules can be avoided.

Partial supervision is executed by depositaries. This is another set of problems heavily criticized by the banks providing such services. Complaints over the huge responsibility, including supervision of unit value calculation (and on-going raw over the correct translation of the Directive) and a high minimum fine did not come to a successful end as the article in the act was in fact not changed. At least depositary fee is no longer limited.

However, the most important issue for fund managers is the one dealing with investment policy - where to invest, how much (limits) and how risky (risk exposures). The act will recognize OTC derivatives (not only exchange-traded options) provided that (a) underlying instrument consists of financial indices, interest rates, FX rates; (b) counterparties are regulated institutions; and (c) derivatives can be evaluated daily and can be sold, liquidated or closed by an offsetting transaction at any time at their fair value at the UCITS´ initiative. If a bank is a counterparty in the OTC derivatives transaction, the risk exposure may reach up to 10 % of its assets or 5 % if it is not. Each six months a report describing types of derivatives, risk exposures, underlyings and risk evaluation methods has to be submitted to the regulator. Please note down that short sales are not allowed.

Tracking funds can be established in Slovakia as the limit for one share/bond issuance is up to 20 % of fund´s assets (despite the general 10 % rule) if the UCITS´s s aim is to replicate the composition of the stock/bond index. Mortgage bonds and municipal bonds may count for 80 % of the fund´s assets on a cumulative basis and 25 % of the assets for one issuance.

Moreover, tax incentives after the tax reform should also be mentioned. Will there be any or will there be missing? Since 1999 a tax exemption for realized capital gains up to 50 000 SKK per year is applied for Slovak participation shares and all securities regardless of the period it was held by individuals. To reduce a tax base individual unitholders have to realize the sale (redemption) every single calendar year. Suffering a loss cannot be regarded as a tax deduction when filing the tax return. Not the best model for motivation, but still better than nothing.

Second, after the 3-year time test securities can be sold as tax-free. This is over since next year - such motivator will be dropped for any further purchase of participation shares. Supporting long-term investments in finest financial products (see ISAs existing in the UK) will not exist because any discriminatory provisions in the Income Tax Act should be avoided. But, will the Ministry of Finance really manage to do so?

A single passport principle will be applied for Slovak funds, i.e. they can be promoted throughout the EU after they comply with the "minimum" host country administrative requirements. Eve though Member States have kept their national barriers increasing additional costs to the foreign funds. Small and medium-sized fund will hardly become subject to cross-border selling. Sometimes national protectionism seems to be stronger than Single Market ideas. In terms of average monthly sales volume cross-border groups account for about 25% of European mutual fund business.

3. Conclusion

Over the next years, emerging markets in central and eastern Europe will be probably ranked at the bottom of the fund industry charts due to the size and national barriers. Such situation can partly be revised by positive legislation image as well as through a high-profile transparent environment for foreign investors willing to accept a greater risk while gaining higher profits. Slovak fund managers have gone through grim and joyless times of coupon privatization until these days. European UCITS will enter our small market gradually. Sharing profits will start since then.

Abstract

Slovenské podielové fondy už niekoľko rokov priťahujú záujem sporiteľov vplyvom komparatívnych výhod, ktoré ponúkajú oproti ostatným produktom. Po štyroch rokoch im prinesie rekodifikácia zákona viaceré možnosti, ale zároveň sprísni ich reguláciu. Článok poukazuje na aktuálny stav a kvalitu trhu kolektívneho investovania na Slovensku a tiež na niektoré zmeny v súvislosti s novým zákonom. Zásadný vplyv na postavenie slovenských fondov bude mať spustenie kritizovanej aj vychvaľovanej daňovej a penzijnej reformy, ktoré priamo ovplyvnia súčasné a budúce príjmy každého občana SR.

References

[1] Act No. 366/*1999 Coll. on Income Taxes as later amended*, www.zbierka.sk.

[2] Act No. 385/1999 *Coll. on Collective Investment as later amended*, www.zbierka.sk.

[3] Annual reports on capital market in 2000-2002. *In Journals of Financial Market Authority,* www.uft.sk.

[4] *Association of Asset Management Companies: statistics in 2001-2003*, www.ass.sk.

[5] *Council Directive of 20 December 1985 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities* (85/611/EEC, consolidated version), www.europa.eu.int.

[6] *Cross-border marketing of "harmonised" UCITS in Europe: current situation, constraints and ways forward*. PWC and FEFSI study, November 2001, p.26, www.fefsi.org.

[7] DLHOPOLČEKOVÁ, K. Comparison of domiciled and foreign AMCs. Diploma work, Faculty of Finance, M. Bel University, 2003, pp. 40-41.

[8] FEFSI: quarterly statistics 2000-2003, www.fefsi.org.

[9] GOCELIAK, P. Association of asset management companies covers almost all mutual funds on the Slovak market. *In Banking journal BIATEC.* 2002, Vol. X., No. 8, pp.10-13. www.nbs.sk.

[10] GOCELIAK, P. Open-end mutual fond in 2002. *In Banking journal BIATEC.* 2003, Vol. XI., No. 3, pp. 5-7, www.nbs.sk.

[11] *Investor.* Slovak monthly magazine, 2000-2003, Vol. I-IV. www.casopisinvestor.sk.

[12] *Investment management industry profile: country reports by PWC,* www.pwcglobal.com.

[13] MACKAY D. Cross-border sales & strategies. Presentation from *Fund Forum* 2002, Rome, Italy.

[14] Pension scheme reform in Slovakia. *Ministry of Labour and Social Affairs*, March 2003, www.employment.gov.sk.

[15] *Proposal for Act on Collective Investment*, www.governement.gov.sk.

[16] *Proposal for Income Tax Act*, www.governement.gov.sk.

[17] *Slovak investment fund industry: country report*. 2001, www.fefsi.org.

[18] *Taxation of UCITS: the principles*. 2002 Update. FEFSI survey, p. 56, www.fefsi.org.

FINANCIAL ACCOUNTING REFLEXION ON THE INTERNATIONAL CAPITAL MARKET[1]

Jana Janoušková

Eva Sikorová

Key words

capital market, globalization of economy, regulation of accounting, International Financial Reporting Standards

1. Introduction

The integration of financial markets, which manifests itself by a growing price interconnection of single segments, is tightly related to a long-term process of internationalization. Despite of progressing integration of securities in the Euro zone on the other side there still exist significant, mainly national barriers, which prevent the further integration of securities markets (and obligations) in the European Union. From the standpoint of issuers the complete corporate law harmonization is considered the most significant for common legislative principles of modification and the governance of commercial companies is lacking (corporate law and governance)[2].

2. Accounting Regulation in Terms of the EU

Globalization of capital markets steers towards the claim to create a general world accounting frame. Different national accounting standards so far make harder and more expensive for the investors the comparison of single opportunities and accepting competent decisions. Therefore in April 2001 the International Accounting Standards Board (International Accounting Standards Board – IASB) received the mandate from the main participants of capital markets to work out the integrated accounting standards

[1] This paper is published with the support of the Czech Grant Agency (grant GAČR No. 402/02/1408 "Comparison of the Financial Markets Development in the Czech Republic and in the European Union").

[2] KULHÁNEK, L. Evolution of the European Financial Markets and Changes of the Enterpreneurial Environment. In: Changes of the Enterpreneurial Environment. In: Changes of the Enterpreneurial Environment in Connection with the Entering EU. Proceedings from the International Conference. Banská Bystrica: FF UMB, 2000, pp. 162-166. ISBN 80-8055-420-X.

– International Financial Reporting Standards (IFRS), whose primary task is to ensure informational needs of investors at the international capital markets.

In September 2002 the Regulation No. 1606/2002 of the European Parliament and of the Council[3] came into force by which from the year 2005 all dimensioned companies in the European Union countries are assessed the duty to prepare their consolidated book closing pursuant to the international financial reporting standards requirements (International Financial Reporting Standards – IFRS). Herewith the dimensional companies settled in the countries preparing for the European Union entry are required to be prepared for accepting the IFRS. In the USA by the end of the year 2002 the local Financial Accounting Standards Board (FASB) closely interconnected its activities with the IASB as well[4].

Many countries have already started the preparation of nationals accounting standards. This creation should not be worked out separately because this solution would be irrational and the existence of different standards for dimensioned and non-dimensioned companies in single countries would cause extensive problems. National accounting systems should converge with the IFRS respectively gradually in a medium-term horizon. Though the European Committee has already obviated some of legislative obstacles of the European accounting harmonization with the IFRS[5], still the regulators of national accounting standards have the main responsibility in this sphere. Therefore the Commission should play an active role in monitoring the course of integrating process and by that even accounting could contribute in a positive way to strengthen the integrated EU market.

This process will influence the whole set of firm activities, including the process of inner reporting and the data acquisition system. The extent of this work should not be underestimated, therefore the final term is drawing near very quickly. For the accounting book closing to get in accordance with the IFRS and to be prepared for the year 2005, firms will need comparable dates already for the year 2004. It means that the IFRS should factually be introduced by the end of the year 2003. From the above-mentioned the recommendation implies even to the firms to deal with these questions already now. The IFRS can change the result of management, to influence key indicators including earnings per shares. Therefore it would be proper to warn the investors and capital markets in advance on the fact what influence the acceptance of the IFRS will have on the firm finances.

---

[3] Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards

[4]The companies, registered at capital markets outside the EU which assembly the accounting book closing pursuant to other acknowledged standards (e.g. pursuant to the US GAAP), are given an exception. They are imposed the duty to use the IFRS from the year 2007. The similar is applied to even for companies having admitted only debt shares.

[5] This act is already set in even in the Czech accounting legislative by the law on accounting adopted to January 1, 2002 (respectively in case of the accounting book closing consolidation by which it is possible for its assembly to use the IFRS or other internationally acknowledged accounting principles, instead of accounting methods set by implementing regulations – public notices).

3. Czech Accounting Standards

Czech accounting faces an uneasy task in connection with implementing Czech accounting standards[6] into the system of legislative modification of accounting. It means a significant change in comparison with a current state and accounting traditions in the Czech Republic. In the legislative modification the former detailed norms and regulations for nearly every situation are gradually stepped back. It is necessary to focus on correctness of presented dates, property evaluation and obligations and credibility of presented economic results. This missing space in the regulation of used methods and procedures will be filled up by the national accounting standards, which should thus ease the situation of accounting units, mainly if they are worked out regarding our environment and customs. They will then become only a methodical recommendation as well as the International Financial Reporting Standards. They will content a more detailed modification, the preparation of which mainly professional organizations functioning in this sphere should participate in. They should contribute to the exactness and correlation of legislative norms and to the terminological heterogeneity elimination. This procedure will enable the more flexible reaction on the accounting theory development, economic needs and new products.

Standards are not an obligatory legislative norm, but its principle is made by recommended solutions of economic situations. Therefore they try to set general rules in which the company will be able to apply its own way in the conflict solution of a concrete accounting case. By this a certain comparison and integration of companies will be possible, however their individuality will not be limited.

From the overseas experience standards react quickly and without a legislative process on modern economy changing needs. Another new element in this solution is separating accounting from the state. This procedure will enable a more flexible reaction on the development of the accounting theory, economic needs and new products as well.

Standards creation will not be a uniphase action. Standards can be expected to be created gradually in a longer period. In the transitory period that is consistent with the Article II of a bid novel of the Law on accounting, present provisions will perform the functions of standards even in the future. Mainly the provision of the standards interpretation mechanisms whose task will be to take up the standpoint towards controversial situations including consecutive presentation of an accepted solution, will be very important. Setting up an interpretation committee is a recognized necessity resulting not only from our present experience and not a redundancy as it is shown by the experience from abroad as well.

---

[6] The creation of Czech accounting standards is set in the novel of the Law on accounting valid from 1st January 2002. The ministry of finance is authorized to publish the rules for creation and issuing these standards. This provision of the law was a step towards the usage of West European countries where national standards are created by non-governmental professional organizations and in practice they have their irreplaceable place.

4. Conclusion

Nevertheless on the way of integrating national accounting rules of single countries including the Czech Republic with the IFRS the complication of some standards is perceived as an obstacle for the convergence, the problem of recognition and measurement in accounting often appears, problems in the sphere of inserted derivates, in the sphere of risks of modified discount measures, accounting fixation of the company profile, in the sphere of deferred tax etc. In more than half of the countries there is a tension between the IFRS, which are orientated on capital market needs and some national accounting regimes, which are subordinated to the tax aspect. Only 5% of dimensional companies in Europe are estimated to have experience with the s IFRS[7].

The creation of a quality world accounting system is a conceptually long-term task for the European committee, the IASB and, however, even for the creators of national accounting standards. The speed of integrating accounting of a single member in countries with the IFRS will be different in various countries. For the Czech Republic this process is tightly connected with its entry to the European sphere and its effort to comply with the pressure of globalization.

Abstract

Pro rozvoj českého účetnictví bude třeba celé řady nutných změn, jimž se nebude ani naše země moci vyhnout. Investoři při rozhodování o alokaci svého kapitálu stále více využívají příležitosti podnikat v nejrůznějších částech světa. Avšak chtějí mít zároveň jistotu, že účetní závěrky vyhotovené ve shodě s nadnárodně uznávanými účetními standardy jsou spolehlivé, věrně zobrazují finanční pozici vykazujícího podniku, jeho výkonnost i schopnost generovat v budoucnu peněžní prostředky.

References

[1] BENEŠOVÁ, K. Pohled za horizont roku 2005. *Účetnictví 9/2003*. Praha: Praha, 2003, pp. 2-3. ISSN 0139-5661

[2] KULHÁNEK, L. Vývoj evropských finančních trhů a změny podnikatelského prostředí. In *Zmeny podnikateľského prostredia v súvislosti so vstupom do Európskej únie.* Banská Bystrica: FF UMB, 2000, pp. 162-166. ISBN 80-8055-420-X.

[3] MARTÍNEK, J. Svět spěje k účetní jednotě. *Ekonom č. 9/2003*, p. 46. Praha: EKONOMIA, 2003. ISSN 1210-0714.

[7] BENEŠOVÁ, K. Pohled za horizont roku 2005. Accounting 9/2003. Bilance Praha, 2003. S. 2-3. ISSN 0139-5661

[4] Vyhláška Ministerstva financí č. 500/2002 Sb., kterou se provádějí některá ustanovení zákona č. 563/1991 Sb., o účetnictví, ve znění pozdějších předpisů, pro účetní jednotky, které jsou podnikateli účtujícími v soustavě podvojného účetnictví, s platností od 1. ledna 2003.

[5] *Zákon č. 563/91 Sb. o účetnictví, ve znění pozdějších předpisů.*

THE IMPACT OF VALUATION OF THE FINANCIAL ASSETS IN ACCOUNTING OF ENTERPRISE ON ITS EFFICIENCY[1]

Jaroslav Sedláček[2]

Key words

valuation, financial assets, efficiency, enterprise

1. Introduction

Accounting is generally considered as a reliable instrument of the financial management that truly represents assets and liabilities of the enterprise and its income from operations. It is based on the principles and codes generally accepted in the whole world. And just the rate of the principle assertion on national and international level results in more intensive or more moderate influence of the enterprise efficiency, usually measured by return on equity. The key role is played by different accesses of individual countries to valuation of assets and liabilities that are influenced by the rate of using of basic accounting principles, namely:

- illiberality, that requires using of unchanging accounting methods;
- caution that does not allow to overvalue assets and revenues of enterprise and vice-versa to undervalue liabilities and costs;
- historical cost that conserves historical conditions, because the enterprise is obliged to file assets in costs in which were acquired;
- truly and faithful display of reality in according with the financial statements must serve the truly portrait of the financial situation of enterprise.

Extra problem is fact that individual principles contradict each other and it remains on decision of enterprises, what weight they attribute to concrete principle in valuation of assets and liabilities. The chosen way of valuation then directly affects the amount of embodied assets and liabilities, it also affects the amount of costs (as in

[1] The paper is published with the support of the Czech Grant Agency (grant GAČR No. 402/02/1408 “Comparison of the Financial Markets Development in the Czech Republic and in the European Union”).

[2] Masaryk university, Faculty of Economics and Administration, Department of Finance. Brno, Czech Republic. E-mail: sedl@econ.muni.cz, phone +420 543 523 256.

money expressed consumption of property) and revenues (as in money expressed increasing of property) as well as it affects the size of embodied operating results. The valuation becomes so the key problem of accounting.

The finding, how are the accounting principles used in accesses to valuation of financial assets in chosen countries, was one of the goals of solution of the project GAČR that is solved by team of workers from Silesian University, School of Business Administration, Karvina and Masaryk University, Faculty of Economics and Administration, Brno.

2. Theoretical Approaches to Valuation of Financial Assets

Assets and debts of enterprises are valued in two moments:

- in the moment of realization of the accounting case, it means when the assets and liabilities are acquired;

- in the moment of compilation of financial statements (balance-sheet, profit and loss statement and annex statement).

In the moment, when assets are acquired, the principle of historical (acquired) cost is used and the asset is recorded in accounting in cost that was expended for its acquisition including adjoining costs cohering with the acquisition. In the case of financial assets it means the value of bond and share including direct adjoining costs like fees and commissions to brokers, advisors, stock exchanges, etc. The main advantage of this principle is its objectivity, because it represents the value that was expended by the enterprise for acquisition of the asset. On the other hand it is blamed, because this principle does not react on changes in valuation caused by economic conditions, especially by market.

In the moment of compilation of financial statements next principles enter the game, namely:

- principle of caution and

- principle of truly and faithful display of reality.

Principle of caution requires considering in valuation of assets and liabilities of the enterprise all risks, losses and devaluation connected with them. It means that accounting on one hand accepts the anticipated losses (by decreasing of assets value or by increasing of debts value), but on the other hand it does not allow increasing of assets value even if it happens in the market. Videlicet the principle of truly and faithful display of reality is not respected.

The principle of truly and faithful display of reality vice-versa respects the market value in form of so-called **fair value**. The fair value represents the market value (noted in domestic or foreign stock exchange or in other public market), the valuation by

qualified estimation or by expert report (in cases when the market value is not available or when it represents deficiently the fair value), or valuation determined by special regulations (when previous possibilities failed). In final consequence it can occur in revaluation of the asset by the real value to increasing of its value in accounting, which was not able in accordance with the principle of caution. Likewise it happens in valuation by equivalency that represents the rate of share of the enterprise on equity in company in which it has capital interest.

By the real value are in according with IAS revalued especially financial assets that are defined as:

- financial assets or liability held for trading, which are assets acquired or liability accepted especially in order to acquire profit from short-term price or dealer's spread fluctuation. No-matter of the purpose of acquisition the financial asset is classified as held for trading if it is a part of portfolio that has recently shown trading point of view. The derivations are considered as held for trading, with exception of case, when they represent effective hedging instrument;

- loans and receivables originated by the enterprise, it means financial assets, that were created by the enterprise, when it granted money, goods or services directly to debtor, and that were created by enterprise with the aim to sell them no-matter of fact whether immediately after their creation or till after certain short time.

By equivalency are then revalued long-term financial assets (capital participation and shares) of enterprise, depending upon the rate of share on equity of that company.

3. Comparison of Accesses to Valuation of Financial Assets

In terms of introduced project accesses to valuation of assets used on international level (IFRS) as well as in national level (Germany, Austria, Czech Republic) were researched. The main differences arise already in differentiation of individual assets. For example in according with standards as the financial asset is considered also the short-term receivable or liability from granted money, good or service directly to debtor, while in other researched countries belongs to another assets or liabilities.

In Germany and Austria the principle of caution dominates in valuation of financial assets against the principle of truly and faithful display of reality. The principle of caution is embraced as a summary of four partial principles of the balance-sheet work of assets and liabilities of enterprise:

a) principle of realization that permits only declaration of really realized profits or losses in selling of assets. As the revenue can not be considered increase of the market value of the asset (bond), if it was not realized in the market (if it was not sold). From the principle of realization results that the maximal value for valuation of the asset in balance-sheet is intended by its acquired costs;

b) principle of the lowest value, in according with from two possible valuation of the asset existing in the moment of the date of compilation of financial statements, it means on one side acquired costs (own costs) and on the other side market value (valuation on stock exchange) it must be or can be always shown valuation that is lower. For example if there was acquired bond in price 1 000 and its quotation on the stock exchange was in the moment of compilation of financial statements 950, it would be shown in the balance-sheet of the enterprise in valuation 950. If vice-versa in the next accounting period the quotation of the bond increases at 1 050, it will be shown in valuation 1 000, it means in acquired costs that are lower. In according with this principle must not be shown unrealized profits, but unrealized losses must or can be shown;

c) principle of the highest value that is used by debts of the enterprise. By analogy as the principle of the lowest value by assets this principle makes possible to use the higher from two possible valuations of debts in the balance-sheet of the enterprise;

d) principle of imparity that on one hand forbids to show unrealized profits (in according with principle of realization), but on the other hand acquires or permits to show unrealized losses that are known in the moment of compilation of financial statements. It means that not the principle of realization, but the principle of the lowest value in revaluation of assets and the principle of the highest value in revaluation of debts are respected.

Using of the principle of caution in valuation of financial assets is shown in Table 1.

Table 1 - The example of revaluation of bonds in the moment of compilation of financial statements

Securities held for trading	Acquired cost	Market value	Difference
Stock A	10 000	14 000	+ 4 000
Stock B	18 000	17 000	- 1 000
Bond	15 000	13 000	- 2 000
Total	43 000	44 000	+ 1 000
In the balance-sheet it will be decreased the valuation of securities on 43 000 – 3 000 = 40 000			

Source: Author´s calculations.

According to supposed period of holding the financial asset in enterprise German and Austrian legislative differentiate two accesses to valuation in accounting:

a) cushioned principle of the lowest valuation;

b) strict principle of the lowest valuation.

The cushioned principle is used in valuation of long-term financial assets. If the market value decreases permanent under acquired cost, the stock exchange valuation is used (by valid quotation to the revaluation date). If it is temporary decrease of the market value, the enterprise can value the asset by valid quotation (but need not).

The strict principle of the lowest valuation is used for short-term financial assets, it means that if the acquired cost is lower than the market value, it is necessary to value the asset by acquired cost, if the acquired cost is higher than quotation the asset is valid in market value.

In contrast to IFRS it is not possible in both countries to use close to conservation of the principle of caution valuation of financial assets on the base of portfolio of long-term or short-term securities. This fact can very affect showing of financial assets in the balance-sheet of the enterprise as was demonstrated on concrete example see ref. [6].

The Czech accounting uses similarly as IFRS in valuation of financial assets the fair value in case of:

a) securities held for trading, where belong stocks and bonds that are bought with the aim to sell them in the public market in period shorter than one year;

b) realizable securities held for trading, where do not belong securities held for trading, capital participation, bonds held to the date of maturity and own securities. These securities can be short-term as well as long-term.

By both described types will be shown in the balance-sheet not only unrealized losses, but also unrealized profits of the enterprise. The difference is in the fact that realized differentiation from revaluation will be accounted in the first case (a) on **cost and revenues accounts** (it will be shown in profit and loss statement) and in the second case (b) on **asset and liability accounts** (as an item of equity).

Unrealized profits (but also losses) can be shown in the moment of compilation of financial statement also in case of capital participation, in case, when enterprise chooses possibility of their valuation by equivalency. In this case the realized difference is accounted as item increasing or decreasing equity according to the character of difference.

If we return to example shown in Table 1, then using the Czech access it will be shown in revaluation the value of financial assets of the enterprise in total amount 44 000. The Czech access according to other world accounting systems markedly prefers in revaluation of financial assets the principle of of truly and faithful display of reality (as the highest principle) against the principle of caution.

4. Conclusion

If we should evaluate the impact of valuation of financial assets on the efficiency of the enterprise, it is indisputable, that the application of the concrete valuation method will lead to differences both in showing of assets in the balance-sheet and in numeration of the operating result of the enterprise. The differences will vary according to traditional accesses of individual countries depending upon distinction (certification) of assets in accounting and measure of acceptation of the fair (market) value in valuation of assets in enterprises.

Abstract

Příspěvek si ve své první části klade za cíl vymezit teoretické přístupy k oceňování finančních aktiv podniků a provést komparaci na úrovni IFRS a vybraných států EU. Ve druhé části jsou nastíněny hlavní příčiny rozdílů v oceňování aktiv a pasiv. Ve třetí části je provedena komparace přístupů a na příkladech je ukázán jejich vliv na rozvahu i výsledek hospodaření podniku.

References

[1] HERFERMEHL, W. *Handelsgesetzbuch*. München: C. H. Beck, 1994, p. 252, ISBN 3-406-38190-1.

[2] PORALT, W. *Kodex des Österreichischen rechts*. Vien: Orac, 1999, p. 627, ISBN 3-7007-1742-3.

[3] KOLEKTIV *Mezinárodní účetní standardy*. Praha: HZ, 2000. ISBN 80-238-2029-X.

[4] KALOUDA, F. – SEDLÁČEK, J. *The analysis of behavior of czech companies in approaching process to EU.* In Mezinárodní konference „Banking and short-term prognoses of the economic development“. OPF SU, Karviná, 1999, pp. 323-327. ISBN 80-7248-046-4.

[5] REŽŇÁKOVÁ, M. – ŠEDOVÁ, J. *Information efficiency of Czech capital market*. In Medzinárodná konferencia "Ekonomika firiem 2001". PHF EU Bratislava, Svit, 2001, pp. 604 - 608. ISBN 80-225-1446-2.

[6] SEDLÁČEK, J. *Oceňování finančních aktiv v německém účetnictví*. In Mezinárodní konference „Finanční a logistické řízení“. VŠB-TU FMMI, Ostrava, 2003, pp. 198 –202. ISBN 80-239-0860-X.

[7] SEDLÁČEK, J. *Oceňování finančních aktiv v rakouském účetnictví*. In Mezinárodní vědecký seminář „Financování firem“. MU ESF, Brno, 2003, pp. 96 – 102. ISBN 80-210-3209-X.

INFLUENCE OF THE STATE TAX SYSTEM ON INVESTMENTS

Aina Joppe

Key words

foreign investments, tax system, tax rates, attraction of investments, tax relieves, tax legislation, income tax allowances, joining EU

1. Introduction

The present situation in Latvian national economy and the future development are tightly related with investment. Foreign investments are particularly important for Latvia as the capital resources of domestic enterprises and the state budget are limited. Mainly Latvia is attractive for investors by virtue of advantageous factors: geographical position and available natural resources such as minerals (gypsum, chalkstone, clays and sand), woods, lands, fish and also Latvian human resources – educated, intelligent and relatively cheap workforce. Difficulties with export of Latvian goods to Russia, caused by political relations between Latvia and Russia, are the main reason for foreign investors to be provident and even trustless deciding to invest or not to invest assets into Latvian enterprises.

2. Foreign investments

Foreign investments can be defined as an amount of capital funded by a given state in a given foreign enterprise, taking control on this enterprise. Foreign investors regard bureaucracy, corruption and very complicated tax legislation and the mechanism how to implement this legislation as the most fundamental barriers impeding and baffling expansion of fair business in Latvia. They don't consider our tax rates as high however the mechanism of taxation itself is cumbersome.

The basic motivation for foreign investors to invest is opportunity to earn high profits, but this is not the only reason to invest, mentioned by investors. An asset holder must decide about diversification of assets from one field of production to another and from one state to another as the variety of opportunities to gain profit in different states and fields is huge. International investment is not an easy taking step, as forms of business activity and formative factors are notably varied in different states. Administrative bodies, informational sources, trade procedures, financial traditions and reports, psychological limitations, legislation bounds, taxation, political risks and risks of exchange rates fluctuations that usually are based on the state national culture also differ by states.

The main reasons to place assets in a foreign state are:

- to get raw materials;
- to produce with lower prime cost, as there are cheaper raw materials, lower level of salaries, wider range of free workforce and cheaper energy resources available in other states;
- to get new market.

Making investments in any state, the following factors have to be considered:

- economical situation in the state on the whole;
- state taxation policy;
- opportunities of market of goods;
- development opportunities of different manufacturing enterprises.

3. Tax system

Nowadays many states decide the problem of attraction of investments, therefore favorable climate for business development in state is relevant, as the state economical growth, living standards, competitiveness of economical subjects, macroeconomic stability depend on amount of investments. State taxation arrangements, administration of taxation, legal environment formed up between taxpayers and supervision structures in a state play the pivot role in creation of favorable climate for business development.

Elasticity of taxation system is expressed as tax relieves, verified tax rates, state promotion of economical development of weaker regions and other conditions which lawmakers assume, issuing taxation laws.

A lot of tax relieves improving business activity are adopted a in the EU countries: taxes are levied with lower rates in certain regions or companies are exempt from taxation for a certain period in some countries (Ireland, Italy, France, and The Great Britain). Profits are calculated on the basis of levied taxes and reinvested. Tax relieves for given categories of incomes are applied in all the EU countries. These incomes are reinvested in education and preparation of staff.

In context of joining the EU and the global market economy system, the Latvian economical system and the manner of cooperation of economical institutions of Latvia must be radically changed, as the economical relations established in Latvia until the 90's had irrevocably gone. The economical slowdown is inherent for the decade characterized with disdainful attitude of state officials to Latvian experience and appropriate points, as well as indisposition to involve professionals and scientists into

solving process of state problems. New models are put in different fields of Latvian entrepreneurship without preliminary investigation and future evaluation under influence of foreign capital. Latvia is the unique state with own traditions and natural resources and with special features inherent for many years only for our country, which must be taken into account making important decisions.

The main purpose of the economical development (to provide coherence of living standards of Latvia with living standards of industrial states) is achievable only when manufacturing is developed and production unities are based on modern high technologies. Population requires higher quality of products of consumption and higher level of education. Therefore it is necessary to create modern technology based manufactures, to develop new fields of science, to make researches helpful for establishment of new manufacturing. Wherewith new SMEs would be shaped, they would become large in future and pay more taxes to the budget; also they would employ more people, so the problem of employment would be resolved.

Taking into account opened economy and free movement of means of production, the taxation problem should be considered in a global context. The author agrees with A. Smith opinion "tax, which screw capital out of the state finally will abolish all the sources of incomes". As an example we can take French experience, when in 1994 about 50 millions of USD flew out of the state due to the accomplished arrangements. Accordingly stability of a state tax system is the point factor of improvement of investment environment and longtime foreign investment attraction.

In the author's conceit, the Latvian taxation policy is in stage of development now; the developed states tax legislation mostly is taken as a background. The taxation policy is rather liberal; it encourages stratification of population in coincidence with the level of incomes, what is related with the proportional rate of income tax and the low level of untaxed minimum. However Latvian taxation policy is rather preserving from the point of low income tax rate; the tax system provides some notable tax allowances that facilitate development.

Latvian tax legislation schedule tax allowances and relieves to provide the development of business environment and facilitate SMEs activity. Tax allowances is one of the conductive fiscal policy key supportive instruments, it helps to attract investments.

Tax allowances are suitable in Latvia for enterprise income tax, for personal income tax, for real estate tax and for excise tax.

The main enterprise income tax allowances:

- allowance for taxes paid abroad. Since 1992, when the intergovernmental tax convention was signed, adjustment of international tax matters had been started;

- allowance for small enterprises – 20 per cents of calculated rating. It provides development of small enterprises recouping burdens of

competition with large enterprises. The budget revenues had not reduced much after this allowance had been implemented albeit some growth is observed;

- tax allowance for investments into the supported investment project – 40 per cents of invested amount of capital (with rights to use untapped amount of allowance during the following 10 taxation periods) Ministry's decision is necessary to adopt this allowance;

- tax allowance for agricultural enterprises – allowance is applied for each hectare of utilized land. It had not reduced budget revenues much. The maximum limit of incomes of agricultural enterprises not taxable with personal income tax is evaluated as anotable tax relief, which is also important for small agricultural producers, who can afford themselves less complicated accounting;

- tax allowance for high technology based enterprises – 30 per cents of calculated rating;

- tax allowance for enterprises employing convicts – 20 per cent of calculated enterprise income tax rating amount. This allowance is one of instruments for employment of convicts; it helps to decide social problems of imprisonments;

- tax allowance for donors – 85 per cents of donation amount, but not more than 20 per cents of the common calculated tax rating;

- tax allowance for donors is very relevant for existence of many non state organizations, however tight supervision of tax administrators is needful in application of this allowance;

- tax allowance for acquisition of busses used for transportation of passengers was initiated to facilitate transport vehicle enterprises to change fleet;

- the entity of tax allowance for enterprises acting in special economic zones is the instrument of state regional policy with fiscal policy arrangements; nowadays these allowances are rather acute. The special economic zones were established to enable development of regions in depression and to attract investments;

- tax allowance for enterprises with the share of foreign capital registered until 01.04.1995. Its activities are to be under the criterion for application of this tax allowance. This allowance reduces tax revenues of enterprise income tax greatly. Significant tax allowances for enterprises with the share of foreign capital caused inflow of foreign investments into the state, though it is too large, as in Latvia enterprise income tax rate is lower than in other states.

The reduction of personal tax revenues in Latvia are caused by the tax allowances, which are not too sizable, but they are used by the big number of taxpayers.

important income tax allowances are the following:

- allowance for dependencies;
- allowance for invalidity;
- allowance for politically repressed;
- allowance for participants of national resistance movement.

The real estate tax is applied mostly for special economic zones.

The excise tax allowances are applied for agricultural production manufacturers that utilize oil fuel to produce heat-energy for heating and preparation of hot water.

Willing to join the EU set some conditions for Latvian taxation system: to improve business environment, attracting investments.

Implementation of EU standards and requirements in taxation will:

- enable Latvian taxation system adjustment and simplification;
- save enterprises from competitive distortions caused by some taxation conditions;
- provide effective levy followed by growth of budget revenues;
- more close cooperation with the EU member states in field of tax administration will eliminate double taxation and reduce non-payments of taxes;
- attract more investment.

As the EU joining treaty says one of conditions for Latvia to become an equivalent participant of the European market is taxation system, adjusted in accordance with the EU requirements. The European Union tax legislation (especially in indirect taxes sphere) rigidly determines tax base and the application order for taxation. Nevertheless transition periods can be determined for implementation of the EU requirements, if to give the necessary foundations; and the constant departures from the EU directives could be received. This is very important for the further development of Latvian national economy; and the Latvian officials had successfully used it during the negotiations.(2) I should add that adjustment of tax rates with the EU level can lead to an increase of prices of some goods and services, negative effects of that will be undermined with the helped of earlier named transition periods.

All the arrangements in sphere of indirect taxes are undertaken to provide improvement and functioning of domestic market, to prevent deformation of competition and abolish barriers for free goods and services movement. Free movement of goods and services and free movement of capital as well as undistorted competition are important factors for successful functioning of the common EU domestic market, so the taxation system should not limit them. Accordingly the common edition of the EU legislative regulations (acquis communautaire) concerns manly taxes which regulate consumption of the EU common market, taxes directed on enterprises trading with non-member states (these are indirect taxes: value added tax, excise tax, custom duties).

Indirect taxes rates are regulated by the EU, but the direct taxes policies should be undertaken by member-states and candidate states governments. However I should note that there is a kind of political commitment between member-states called "Code of Conduct for Business Taxation"; it affects direct taxes and predict not to make new tax arrangements, distorting competition in the EU domestic market and to abrogate all the existing norms having alike effect. Therefore reform of direct taxes system is Latvian internal affair. The purpose of it is to provide favorable business environment in Latvia that is one of the necessary conditions, providing ability of national economy to cope with competitive pressure in frames of the EU domestic market (2).

4. Conclusion

As positive moments joining the EU could be mentioned elimination of custom duties for goods imported/exported to the EU member-states, simplified custom procedures, followed by improvement of trade. Costs of following the legislation norms will lessen providing friendly environment for foreign businessmen and inflow of foreign capital.

The paper "The Basic Statements for Macroeconomic Development and Fiscal Policy for 2002-2006" elaborated by Latvian government highlights that tax rates for enterprises are to be lessen to provide improvement of business environment and foresee to lessen enterprise income tax rate to attract investments.

State revenues mostly depend on the priority directions of Latvian government: activities of economic institutions, Latvian natural resources, and geographical position. Attracting investment it is necessary to evaluate company's strategic plans and decide about necessity of this capital. The sense of these arrangements is principle of refunding.

The author agrees that taxation policy must provide the primary basis for redistribution of incomes in the national economy. It has to promote but not to preclude entrepreneurs interest to earn and at the same time it must ensure state and municipal budgets revenues. Tax policy's arrangements must support weaker economic subjects, partly adjusting incomes of weaker and richer enterprises. That should be used as stimulating instrument for achievement of settled state and social aims, for example, improvement of demographic situation, provision of free workplaces, attraction of investments, beneficence and so on.

The author supposes that state must determine the right direction for state investment policy, but not to implicate into business activity and to make clear for businessman which way to go. State must coordinate, promote cooperation and supervise observance of business regulations in sphere of investment by business entities. Small, medium and large enterprises enable state economic growth in conditions of market economy. I should note that state expends a lot of money for investment attraction arrangements, so making important decisions about it, state officials must involve more academicals and professionals into this process and they must consider effectiveness of the arrangements too. Here the author wants to talk about state direct participation in regulation process of investment – legislative, controlling, investment stimulating. There two participants in process of investment – state and market. Not only state plays the absolute role in market participant evaluation process. State investment must help where the private sector is not able to operate itself and vise versa, where state enterprises actions are not effective – more effective forms of private enterprises must go on. State must determine rules of the game for economic development. Stability and honest competition are the pivot factors for foreign investors.

The author thinks that state regulation of investment is effective until it enables economic growth and gives positive results.

State must generate and determine the common order to businessmen work effectively and creatively and to know the right direction planning business for the future. It must support investment climate and improve business environment. State needs experts for evaluation of investments effectiveness, field where to direct capital. This activity must be coordinated and controlled tightly; it can not be spread on itself.

Investments are one of primary conditions for any national economy short term and long term development. Investments directed on future development and affect economic situation as a whole and each inhabitant individually. For example, GDP increase, as investment activity growth causes employees number increase (effect of income), enabling production of more goods and services to satisfy needs of society and needs of each inhabitant. Efficiency of investment in adjustment of infrastructure is observable by every member of society, as roads, energetic traffics and other elements of infrastructure are used by everybody.

The author deems that government must work out economic leverage mechanism to attract foreign investments. It must offer wider opportunities to work in special economic zones for probable foreign investors; and eliminate administrative barriers disturbing foreign capital inflow to Latvia.

Abstract

Ve stati je věnována pozornost zahraničním investicím a dopadům daňového sytému na světovou ekonomiku. Řada zemí se rozhodla vytvořit příznivé klima pro podnikání. Na druhé straně záměr vstoupit do EU vyžaduje určité podmínky pro litevský daňový systém.

References

[1] BREAM, R. Credit Commercial de France. *Euromoney*, May 2003, pp. 115-116.

[2] JONES, CH. P. *Investments: Analysis and Management*. North Carolina State University. John Willey & Sons, Inc., 1999.-3rd ed.

[3] KAVALE, L. *Politics of Taxes*, 2000.

[4] *National Plan of Development*, 2001.

[5] *Report of National Economy Development of Republic of Latvia*, 2003/II.

PAYMENT CARD MARKET IN SLOVAKIA

Jaroslav Belás

Štefan Panenka

Key words

payment card, cash dispenser, payment terminal

1. Introduction

Payment cards present today an indispensable element in society live. Based on the actual informations we can say that their acceptance as an instrument in the system of payment is worldwide extraordinary high. The objective of this article is to analyze the actual situation in the field of payment guarantees like an instrument of payment and to indicate some perspective trends in development of payment cards in the Slovakia.

2. Payment Card as an Instrument in System of Payment in the Conditions of Slovak Bank Sector

The payment card belongs among the new, modern instruments in system of payment. It was begun to use in west Europe and USA in 50-ties of 20th century. In its real form it was applied to Slovak bank sector first after the establishment of 2-level bank system.

3. Ending

Based on the mentioned data it is possible to define some elemental conclusions:

1. in the field of „growing environment“ in the past 5 years was registered an obvious growing trend and the highest growing rates were in the field of installation of payment terminals and their acceptance from the payment cards holders;

Table 1 - Development of payment cards and ATMs in the last 5 years (Actual situation in Slovakia)

Indicator year	1998	1999	2000	2001	2002
No. of distributed payment cards	1.358.134	1.542.985	1.719.503	1.974.581	2.459.177
No. of new ATMs	965	1.011	1.084	1.182	1.366
No. of transactions in the Bank (in thd.)	48.857	52.892	49.478	52.125	58.905
Sum of transaction in the bank (in mil. SKK)	57.632	69.002	82.522	95.917	122.160
No. of payment terminals	3.001	4.623	6.322	9.602	12.265
No. of transaction in the payment terminals (in mil.)	1.161	2.293	5.648	10.603	15.996
Sum of transaction in the payment terminals (in mil. SKK)	1.494	3.116	6.844	11.737	17.633

Source: http://www.zbk.sk/.

2. by evaluation of single steps is evident, that especially important was the year 2002, when we registered the highest growing rate of ATMs and No. and sum of transactions in the ATMs. In the year 1999 was noticed the greatest increase in the No. of installed payment terminals;

3. much different is the situation in the indicator acceptance of technological instruments from the payment card holders. We will use for comparison the data from the year 2002. The average No. of realized transactions per ATM, net for the given year was 43.122 and average volume per transaction was 2.074 SKK. Average No. of transactions per the terminal was 1.304 and average volume per transaction was 1.102 SKK;

4. from the point definition of the actual situation of „card environment“ it is important to analyze the situation in relation to the cash payments. The relation No. of cash transactions in ATMs to the No. of cashless, which were realized through

payment terminals is 3,7:1 and the relation to the sum of transaction was 6,9:1 in the year 2002. Despite to the fact, that the cash transaction are still dominant, their relation is getting smaller, what proofs the relation No. of cash- and cashless transactions for the year 2001, which was 5:1, the relation of sums was in this year 8:1.

Recommendations on the field of bank payment cards can be briefly summarized in the following points:

a) gradual formation of the optimal technological platform for the preferred grow of the cashless payment system;

b) price policy optimize in the relation to the market net and the payment card holders;

c) simplify of the „card environment“ for the bank payment cards holders.

Abstract

Slovenský bankový sektor zaznamenal dynamický rozvoj v oblasti platobných kariet v uplynulom období. Aktuálna situácia v oblasti platobných kariet na Slovensku je charakteristická nasledovnými údajmi: 2,5 mil. vydaných platobných kariet, 1.366 inštalovaných bankomatov a 12.265 platobných terminálov.

References

[1] BELÁS, J. – KLIMIKOVÁ, M. *Platobný styk*. Pov. Bystrica: Uniprint, 2003.

[2] HORVÁTHOVÁ, E. *Bankovníctvo*. Bratislava: Súvaha, 2000.

[3] POLIDAR, V. *Management bank a bankovních obchodů*. Praha: Ekopress, 1995.

[4] PRNO, I. *Bankovníctvo*. Iris, 2000.

[5] PŘÁDKA, M. – KALA, J. *Elektronické bankovnictví*. Praha: Computer Press, 2000.

[6] Statistical yearbook of Slovakia. Bratislava :Veda, 2001.

[7] http://www.zbk.sk/.

FINANCIAL SOURCES OF THE REGIONAL TRANSFORMATION PROJECTS

Ivo Veselý

Key words

Moravian-Silesian region, state support, EU funds, pre-accession period

1. Introduction

The Moravian-Silesian region is one of so- called old industrial regions. These regions are characterized by several traits:

- an above-average density of population, size of centers, provision of infrastructure (in contrast to rural regions);

- an above-average existence of industry (compared to other regions of similar size);

- early industrialization (compared to other regions in the country);

- the regional economy is dominated by specific sectors (usually heavy industry);

- economy is often dominated by big enterprises;

- little ability to regenerate from its own potential.

2. The Overview of Supportive Instruments

In the past number of years, many supportive measures and programmes were implemented in the Moravian-Silesian region relating to its development and restructuring. These were financed either from national public sources or from abroad. Many programmes financed by public sources are implemented in a similar way throughout the Czech Republic. However, there are some programmes which specifically impact upon the Moravian-Silesian region, especially those related with coal mining, the "brownfield redemption" and other undetermined sites. With respect to foreign sources, some of them were allocated in the region as part of the development of the country and some, for example, from the EU PHARE, were allocated within the specific programme called “The Regional Development of North Moravia and Silesia“ which has become the pilot programme for the regional development in the Czech Rep.

3. Situation During 90´s

3.1 The National Budget Expenditures

In the list of the national budget expenditures we can highlight the territorial balancing subsidies of the Ministry of Finance, the subsidising policy within the agro complex (the Ministry of Agriculture) and the investments in the transport, technical and civil infrastructure, provided through the budget of the individual ministries. There are, though, three kinds of programmes financed from public sources which exercise the direct influence upon the economic and social situation in the region, thus influencing its economic growth, for example, funds allocated for environmental protection, the pro-active employment policy and the support of small and medium-sized enterprises.

State support of the *National Environmental Fund* range from 118,1 (1995) to 818,1 (1994) million CZK yearly. From the national budget MSR allocated also *for the redemption of coal mining activities* about 3 billion CZK.

In the area of *pro-active employment policy* were expenditures ranging from 111,7 (1997) to 199,3 million CZK yearly. Pro-active employment policy is an appropriate supportive tool because it contributes to the establishment of new jobs, the preservation of the current ones and it encourages the unemployed to start up their own business.

The support to *small and medium-sized enterprises* is mostly implemented instrumentally through ČMZRB programmes (Czech-Moravian Guarantee and Development Bank).

3.2 Programmes within EU Assistance

The regional development support from the EU funds in the Czech Republic commenced in 1991 within the programme called Enterprise Restructuring and Privatisation. North Moravia and Silesia (the current Moravian-Silesian Region) was chosen as the pilot project, because of its industrial character (metallurgical plants, coal mines, heavy engineering and chemistry) and its expected restructuring with strong impacts in the economic and social spheres.

3.2.1 The Phare Programme CS-9203

Within the financial memorandum for the CS-9203 Programme – the Privatisation, Restructuring and Private Sector Development, 12 million EUR were allocated in 1992 for the development of North Moravia and Silesia as support for regional projects. The above amount was split to cover the establishment costs and projects of two institutions:

- The Regional Development Agency Ostrava (RDA) founded in 1993 - 2 mil EUR;

- The Regional Enterprise Fund in Ostrava (REF), founded in 1994 - 10 mil EUR.

Both these institutions implemented the first projects from the EU funds in 1994 – 1996. The RDA projects at that time were focused on the centres for the enterprise support (Ostrava, Kopřivnice, Krnov), on the Feasibility Study and Business Plan for the establishment of the Science and Technological Park in Ostrava, the establishment and support for the development company of the Ostrava-Mošnov airport needed for the establishment of the industrial zone on the Ostrava-Mošnov airport, the support for training and projects in municipalities, the development of tourism (the cycle path and Tourist Information Centres), regional promotion, the establishment of the Regional Information Centre and support for the RDA operation. The RDA has thus become the steering unit for the PHARE programme for the North Moravian and Silesian region and also the leading agency for the regional development within the whole Czech Republic.

The Regional Enterprise Fund projects focused on support for small and medium-sized enterprises in the form of venture capital. 15 companies were thus supported. The REF has become the pilot project for the venture capital fund in the Czech Republic and was extended to cover all of the Czech Republic, with the participation of the EBRD, ING Barings and Czechoslovak Trading Bank (ČSOB), which has operated since 1998 under the name of the Czech Venture Partners.

3.2.2 The Phare Programme CZ9503-09-01

Within this programme, the fund for small infrastructure projects was established (the Small Scale Infrastructure Fund), which was designed to solve the impacts of the 1997 floods in municipalities. In total, 1,5 mil EUR were allocated through the Agency for Regional Development for 46 projects in the sphere of recovery of the infrastructure.

3.2.3 The Phare Programme CZ9603

Within the Phare CZ9603- Regional Development Programme for 1997 – 2000, another 2 mil EUR were allocated to continue work in the following programmes:

Regional Infrastructure Development (660.000 EUR) – The Industrial Zone SOM next to the Ostrava- Mošnov airport, the Science and Technological Park Ostrava, the Regional Logistic Study, and the Preparation of the Implementation of Regional projects.

Local Infrastructure (620.000 EUR)– projects in municipalities, the support to tourism and small and medium-sized entrepreneurs.

Information and Public Awareness (510.000 EUR) – promotion of the region, the Regional Information System, the Euro-Info Centre, training projects in municipalities.

Regional Development (210.000 EUR) – support for the RDA operation and the preparation of the Regional Operation Programme for the future implementation of the EU structural funds.

The implementation of this programme, which is managed by RDA Ostrava, was completed in the year 2000.

3.2.4 The Phare Programme CZ9807

The programme for the preparation of the EU structural funds implementation, covers the whole Czech Republic. Within the Moravian-Silesian region, the project CZ9807-01-04 - The Investment Support for Micro-region Pilot Projects (1.250.000 EUR) is being implemented, for the investment support to the infrastructure development in the Jeseníky micro-region and the ROP implementation for the NUTS II Moravskoslezsko.

3.2.5 The ECOS/OUVERTURE PROGRAMME

Within the ECOS / OUVERTURE programme, many projects were allocated to the region, focused mainly on the exchange of experience and technical assistance of the EU experts for the region:

- Master Plan Karviná Project (40.000 EUR) – the development of the strategic plan of the development of the Karviná and Třinec region (1993-1994);

- The VIGIE project (300.000 EUR) – information support for regional development (1995 – 1996);

- The SCAN project (52.500 EUR) – sharing the EU experience between the regions impacted by the restructuring of metallurgy (1996 – 1998);

- The RESCKO project (590.000 EUR) – sharing the experience with the conversion and restructuring of metallurgical and coal mining plants (1996 – 1998);

- The REGVIS 2005 project (271.000 EUR) – the key project only for the North Moravian and Silesian region (now the Moravian-Silesian region) managed by RDA Ostrava. One of its outputs is the Regional Development Strategy by the year 2005, which has become the pilot project and a model for the regional strategies in the whole Czech Republic.

4. The Current Stage

4.1 State Support

During the late 90´s and after 2000 year support programmes continued . Upto the year 2004, new state policy has been involved for SME development . A stage of approaching European Union is, at the same time, characterised by newly oriented programmes based on EU pre-accesion ans structural funds. Investment incentives and support for industrial zones have very sucessfully been used.

4.1.1 Investment Incentives

Investment incentives are co-ordinated by the Ministery of Industry and Trade institutions (Czech Invest, Czech Industry…).

An investment incentives system function implies lots of experience. A system has been developed and consulted with the EU authorities and consistent with achieved results, and its modifications have been gradually made.

Evaluation of this process is based on the following information:

- an overall investment amount of 142 approved projects should value at nearly 5,4 billion EUR and 44 441 new jobs are about to be generated;
- most of the state-aided projects are directed towards the Usti nad Labem and Central Bohemia region;
- the majority of new jobs is supposed to be generated in the Central Bohemia, Olomouc and Usti nad Labem regions;
- more than 37 per cent of all state-aided projects fall on two branches according to the NACE: to manufacture electrical and optical instruments and to manufacture transports equipment. 27 254 new jobs are supposed to be generated in these two branches;
- foreign direct investment is mostly from German, Japanese and Dutch investors. - about 30 000 new jobs , in total, to be generated from these three countries. So far investors from altogether 18 countries, including the Czech Republic have utilized this incentive system;
- Czech companies have been using the incentive system frequently – altogether 23 projects with a groundwork for 2 391 new jobs;
- almost one half of all projects reaches the value of 10 to 25 mil EUR, nine projects are supposed to exceed the amount of 100 mil EUR while 23 projects are estimated

for an investment under 10 mil EUR each;

- 54% of companies are going to invest more than 60 per cent of the overall investment amount in machinery;
- machinery imports : 66 companies import all the machinery and more than 90 per cent of machinery and equipment will be imported by altogether 97 companies;
- almost 32% of companies will export all the production; 31% of companies will export more than 90 per cent of the overall production; 23% of companies will export approximately a half of the overall production; only 7 companies do not count with exports whatsoever;
- incentive investment inflow and machines and equipment purchases to implement investment affects temporarily a trade balance of the Czech Republic;
- an accurate total exports value of the investment companies can not be figured out; however, it may be taken for granted that the overall exports will exceed the initial machines and equipment imports in the course of time to stabilize the overall trade balance;
- foreign direct investments inflow has a positive impact on the overall balance of payments;
- an overall production volume increase (including building production mostly made by the Czech companies) is reflected in the growing Gross National Product;
- incentives have been improving the labour market by lowering unemployment, raising labour productivity and upgrading quality;
- out of all running investment proposals 94,6% have already complied with the promised new jobs quotas;
- Ministry of Labour and Social Affairs paid off grants in the overall value of 1 445,1 bil CZK on December 31, 2003;
- an estimated tax exemption within 1999-2003 for pre-judicial projects amounts to 6,348 bil CZK and 15,5 bil CZK for legitimate projects.

4.1.2 Industrial Zones

The main goal of "The Programme of Support for Development of Industrial Zones**"** is to define rules and set conditions for providing government subsidies to municipalities, regions and developers in the form of direct subsidy, interest subsidy and returns from financial aid from the state budget (for infrastructure development partly covering the costs of water and gas pipelines, sewage system, power supply, local roads,

level-off works, and the removal or transfer of existing infrastructure) and in the form of transfer of land owned by the Czech State (specifically the Czech National Land Fund) to municipalities, regions and developers at a discount, or a subsidy to purchase land from other owners.

This Programme includes four sub-programmes:

- *preparation* -the main goal is preparation of competitive industrial zones, in which the investment (in the areas of manufacturing industry, strategic services and technological centers) will be realised;

- *regeneration* -the main goal is preparation of industrial zones for achievement of new investment by utilization of former industrial land. This sub-programme contributes to the process of industry reconstruction in the Czech Republic and environmental reclamation;

- *construction and reconstruction of the produce segment* - the main goal is to stimulate construction and reconstruction of production segments located in the industrial zones, which will be leased to high-tech companies. This sub-programme facilitates the creation of new employment opportunities in the areas of manufacturing industry, strategic services and technological centres. An equally important objective is to attract direct foreign investment into manufacturing sectors by facilitating the ability to start production quickly;

- *accreditation* - the main goal is improvement of skills and professionalism of administration staff of industrial zones to increase their effectiveness.

Industrial zone Karviná-Nová pole

This zone came into being over 40 hectares; there were originally two shop floors at disposal with an extent of 1000 square meters. Now, the following subjects are doing business or are preparing to do so:

- GRADDO, a. s., the assembly of the cable bundles for the auto industry. The number of employees by 31.12.2001 was 359;

- DEXON –Ing. Stanislav Raszyk, the production and sales of products in the field of electro-acoustics, the number of jobs: 48;

- Shimano Czech Republic, s. r. o., the production of bicycles, chairs for the disabled, and other means of transport, 800 jobs;

- Czech Klinipro, s. r. o., the production of medical instruments , 400 jobs;

- Belfort International N.V, printmaking of plastic bags, the number of jobs is yet unknown.

According to the state agency for foreign Investments, CzechInvest, the industrial zone of Nová pole Karviná has received the greatest social benefit in the Czech Republic.

4.2 EU Supporting Activities

4.2.1 Programme Phare 2000

17,4 mil EUR was allocated within the Phare 2000 programme - Economic and social cohesion for the Moravian-Silesian Region.

The programme has the following structure:

- CZ 0010.03 *Grant schemes in support of the development of human resources*, innovative entrepreneurship and tourist infrastructure: 13,3 mil EUR;

- *Fund for the Support of Innovative Entrepreneurship* is a grant scheme with the aim of increasing competitiveness in the area of SMEs, and in the development of enterprises. A total of 29 projects were financed in the amount of 5.935 million EUR;

- Grant scheme- the *Tourist Infrastructure* has the task of contributing to the change of the region's image from the environmentally harmed area to the tourist attractive locality. 30 projects were realized, for which Phare provided in total 4 million EUR;

- The scheme of the Development of Human Resources provides grants in support of the social sphere. 3.4 million EUR in total was invested into 32 projects;

- CZ 0010.03.02 *Research-technological park Ostrava*: 2 million EUR.
  Investments flow into the development of the infrastructure;

- CZ 0016 *Development of the Industrial Zone Ostrava-Mošnov*: 2.1 million EUR.
  Investments into the infrastructure are financed by means of Phare 2000. The Mošnov project was granted assistance from the Phare programme 1992 and 1996 and from the ADR.

4.2.2 Project Preparation Facility

In total, 1.8 million EUR was allocated in the following structure:

- CZ 9916 *Study for the purpose of the identification of the industrial groups in Northern Moravia,* 0.2 million EUR. The project should identify the potential competitive industrial groups in the region and the development of strategies and

action plans for the purpose of growth and development;

- CZ 9916 *Demonstrative regeneration project Ostrava/Vítkovice*, 0.6 million EUR.

4.2.3 Programme ISPA

The maximum sum allocated for the Moravian-Silesian Region amounts to the total of 73.951.156 million EUR. This sum is divided into:

- the approved projects in the area of the environment: in the year 2000, the city of Ostrava was granted a contribution of 16.664,7 mld EUR from the ISPA fund for the sewerage development and the construction of the main services duct in the city centre with the expected period of construction in the years 2002-2005;

- the approved projects in the area of transport:

  - Dobrá-Frýdek Místek (highway R48);
  - Bypass of Bělotína (R48);
  - Dobrá-Tošanovice (R48).

4.3 Example of the Project

In the following section of this paper one of projects executed within the program RADA (Rural Area Development Alternatives) will be briefly described . The whole project aims at "increasing the support of economic development in rural areas through the emerging of industrial SME or new alternative economic activities".

The goal entails two main objectives: SME support in rural areas, and tourism development support. Each of these objectives introduces two measures, the first focused on analysis, reflection and co-operation proposals and the second clearly dedicated to direct implementation actions or direct support for SME and the tourism pilot project.

Five principal partners cooperated in this project:

- City of Hradec nad Moravicí;
- Silesia Voivodship;
- Lorraine Regional Council;
- Shannon Development;
- Regional Government Castilla La Mancha.

Financing of the project was managed in two different ways: within the Phare programme (with EU contribution 75%) and within ERDF (European Regional Development Fund) programme (with EU contribution 63,5%).

Budget of the Czech partner was 71 191 EUR, of which EU contribution was 51 241 EUR, and 19 950 EUR was co-financed. Co-financing was diversified. Part of costs were from state budget refunds during sector and regional operating plan support, and by other SME support sources. Another part of costs was paid through the municipal budget.

5. Conclusion

Financing support is necessary for regional transformation. Financial sources came partly from state (public) sources, and partly from abroad. In any case, during the last ten years, the support programmes rapidly changed. The current stage is characteristic of the co-financing system. Programmes for the transition countries are based on different principles from EU member countries. Understanding the new principles of co-financing, entrepreneurs will be able to solve significant problems for financing EU- supported projects within the Czech Republic.

Abstract

Financování regionální transformace je nemyslitelné z vlastních zdrojů Moravskoslezského regionu. Přitom je třeba vidět, že tato transformace představuje dlouholetý a finačně náročný proces. Článek uvádí příklady hlavních forem finanční podpory regionu, jednak ze zdrojů státních (veřejných), jednak ze zdrojů Evropské Unie. Z provedené analýzy vyplývá, že současnou fázi charakterizuje zejména princip spolufinancování. Základním problémem do budoucna však bude zejména přeorientování se na principy podpory v rámci členských zemí, které jsou zejména u podnikatelských subjektů koncipovány odlišně od naší současné praxe.

References

[1] ECKART, K. *Handbook for the Leonardo Project.* Duisburg: Universität Duisburg-Essen, 2001.

[2] *Regional Operational Program.* Ostrava, 1999.

[3] www.mpo.cz

[4] www.transconver.com

[5] www.radova.cz

AN INVESTIGATION INTO THE DEATH OF ORGANISATIONS FROM OLD AGE IN TURKEY

Murat Kasimoglu

Key words

death of organization, organizational existence, aging

1. Introduction

The purpose of this study is to examine the models which are used to analyse organisations as evolutionary adaptations to their environment. In the first section of the paper the literature is reviewed to identify those features of evolutionary adaptation which have been used in the description of organisations. Particular attention is focused upon the way in which the ageing of organisations is understood.

The second part of the study takes empirical data from the province of Canakkale in an attempt to test the various environmental models which have been identified in the literature. 188 companies in the province which were established in 1963 are taken as the sample, and a "Life Table" (LT) approach developed. In this approach the length of life and probability of death of organisations is studied. The results of the empirical study can then be compared with the expectations which arise from the theoretical approaches found in the literature.

The main reasons that the Canakkale area was chosen are that the data was easy to obtain and that there are records of business operations from 1963 to the present day. Moreover, studies of companies in their environment need to be conducted in local areas and at sector level, in order to relate better to local market conditions and obtain more reliable and valid results.

2. Organisational Existence and Death

Previous empirical studies on organisation have focused on different areas of organisational survival. A few example of those can be given as follow (Amburgey, 1993 *et all*,Barnet,1997,Baum and Singh,1994) Baum and Oliver (1991, 1996) found that there were institutional connections to the organisational mortality. Bonn (2000) found there were significant correlations between the survival of an organisation and size, planning, system, corporate direction, research and development and ownership characteristics. Krell (2000) focused on nature of technological, environmental and

cultural change. Porsander (2000) used the vocabulary of translation in order to discuss the process of imitation. Akin (2000) found that the core identity of an organisation was important in longevity. In the studies of Konz and Katz,(2000) on survival, metapopulation analysis and survival of the fittest were handled through the systems theory perspective providing the foundation for a related analysis of the organisation (Montuori,2000) and the development of a new conceptual model of organisational change.(Barnett and Pratt, 2000) Sutton (1987) focused on process of organisational death; Swawmathan (1996) found environmental conditions were important variables in the founding and death of organisation.

Without no doubt the scope of the study in organizational survival is too broad. But If we take a general look at the markets in which organisations are situated, two basic approaches to explaining their behaviour related to this topic can be seen of great importance. The first is the population-environment approach, the second is the adaptable approach. According to the population-environment approach, individual organisations are inflexible and do not adapt to their environment over time.(Hannan and Freeman, 1977,1984,1989) Their survival depends upon their initial adaptation to their environment, and the lack of change within that environment. In contrast, using the adaptable approach, organisations are generally seen to have a more flexible structure and are inclined to vary their habitual strategies in order to adapt to their surroundings.(Cyert and March, 1963; Levitt and March, 1988; Bruderer and Singh, 1996).

According to many scholars, these two theories are not really contradictory. In practice they complement each other. The environment-population approach focuses attention on the population as a whole and its fitness to survive in the environment, while the adaptability approach focuses attention upon the individual organisation and its ability to learn. Levinthal (1991) discusses this subject in a different way. In this case, learning and selection appear as processes which are basically dependent upon each other, because adaptation increases inflexibility and this in turn speeds up the process of environmental selection.

On the subject of the adaptation of organisations to their environment, natural selection approaches can produce surprises. The evolutionary question, especially, provides satisfying answers. From the point of view of organisations, the subject demonstrates several exciting features. However, in order to analyse the micro evolutionary process of organisational optimisation in the market, it is necessary to consider the relationships between parameters from various perspectives. Each type of organisation will develop an evolutionary strategy for its own purposes. For example, an organisation might adopt suitable strategies for survival by using links to educational establishments to increase its adaptability. Another factor which can be observed in the markets is that organisations in the public and private sectors develop their own peculiar strategies.

If we examine organisations in an ideal model, we can see that generally the whole population will attempt to adapt to one type of strategy. Supposing that at this point some mutation has occurred, then each of the small units will tend to copy others when entering the market. This assists them in developing other strategies in line with market conditions. Three possibilities are apparent at this point: the new strategy may

spread to the whole of the organisational population and replace the old strategy, in what can be called a successful substitution of strategies; the new strategy may be accepted by organisations but be unsuccessful; or the old and the new strategies may co-exist. If an organisational strategy demonstrates that it can hold its own with other strategies, it is known as an evolutionary stable strategy.

The most important approach in this area is the organisational ecological approach, which is macrosociological, and consists of a general ecological model and the evolutionary model affecting the population of organisations. Its basic purpose is to provide an understanding of the influences affecting organisational structure in a period of time.

Every organisation possesses a certain quantity of resources. These resources are used to meet various needs. The amount of energy consumed while using these resources is a source of contention between organisations. The struggle is concerned with the values necessary for all organisations to live on a global basis. The areas for which organisations use the most energy are: maintenance, growth and reproduction. Maintenance basically involves those routine activities necessary for organisations to continue operations. In addition, some organisations tend to save some of their energy for future use.

Some of the basic critical questions here are: what are the factors causing the organisation to first come into being? How do organisations continue to remain of the same type? Do they exhibit qualities which are different from other organisations? We will attempt to describe how all these factors affect the evolutionary process of organisations by using the classification of Mayr (1969; McKelvey and Aldrich,1983): in this classification there are three types of processes; Ecological Processes, Generational Processes, and Isolating Processes.

3. Ecological Processes

Most theorists subscribe to the theory that the environment has an effect on organisations. A number of researchers (Caroll, 1985; Greve, 1996; Leblebici *et al,* 1991; Lomi, 1995; Kocel, 2001) have found that different dimensions of organisational ecology affect the life span of organisations and competition between organisations.

There is currently a large variety of possible organisational forms. Specific organisational features may be present or absent. The environment of one or more organisational structures can be dominated by political, legal, cultural and technological influences. When the population of the organisation changes, this can affect the environment of all other organisations. The population of organisations will generally adjust so as to be optimal for their current ecology.(Hannan and Caroll,1992) The behaviour of one type of organisation can create resources for other organisations. To give an example, by playing a leading role in producing new goods and creating markets, small-scale organisations can use strategy to survive in the face of large organisations or conglomerates.

It is also possible that resources may be created by the community of organisations, except where there are holes in the market. It can be seen that generally flexible, large, specialised organisational structures attempt to dominate resources in the marketplace and to prevent the appearance and development of new organisations. In contrast, it is possible that hundreds of different small-scale firms could emerge. Such a situation is also created by the ecology of the community of organisations.

4. Generational Processes

Even though ecological communities provide a pool of resources for organisational structures, the members of the organisations still need to seek the answer to the question as to why some specific organisation populations make use of different pools. The basic reason for organisations wanting to utilise specific pools is that they wish to share the employees with organisations of the same type. The skilled staff represents all of the knowledge and talent of an organisation. The competence of an organisation generally consists of the collective of their skilled staff.

The skill of an organisation is expressed in a combined form. It covers technology, organisational knowledge and skill. All of these factors are very closely connected to the survival of organisations in the marketplace. At this point, it is possible to comprehend the skills of an organisation and the problems it encounters in its environment by looking at its reactions to those problems.

Organisational competence is usually created by individuals. If this competence is at a higher level than that possessed by the competition, then the chance of survival of the organisation is increased. Developing a broad skill base over a long period of time is important for developing suitable competence. As for organisational ecology, it is possible to state that effective competence is more widely shared than ineffective competence and emerges successfully from selection. This demonstrates why organisations adopt techniques which are widespread in the market. At the same time, it is possible to show this mechanism is one of the reasons for the increase in one specific type of organisation.(Suck and Chwe, 1999).

5. Isolating Processes

The movement of competence between organisations (either by the movement of personnel or through the adaptation of strategies) represents a factor which prevents the isolation of organisational populations. Various isolation factors will stop this process. It is seen that some skills are not useful for certain organisations. It can be imagined that experienced individuals from certain populations may not be very useful for the work of another organisation. The populations of many organisations follow a difficult and complex process to gain the competence they possess. In specialist fields, they have to undergo a long period of training in order to acquire the necessary specialist knowledge. Examples of these are engineers, doctors, professors or lawyers. In many

occupations it is necessary to spend a long time acquiring competence. It is thus difficult for organisations to obtain possession of competence in a short time.

6. Ageing Factor in the Death of Organisations

Henderson (1999) found that multiple patterns of age dependence may simultaneously exist within a single population. Organisational ecologists have discussed ageing factor from different point of view. Research addresses relationship between age and failure. For example, Hannan and Freeman (1984) describe the risk of newness, Levinthal and Fichman (1988) and Brüderl and Schüssler (1990) describe the risk of adolescence, and Barron, West and Hannan (1994) describe the risk of obsolescence.

In the early years after an organisation is established it is exposed to the risk of newness when Ecological Processes dominate. Those organisations which are well adapted to their environment will survive, while those which are less able to compete will die. When we look at companies in this phase of their development, we would expect to find a higher than average mortality. Once organisations have survived for a while, Generational Processes become increasingly important, and the organisations face the risk of adolescence, when their survival cannot be ensured solely by their original suitability to their environment; they need to start to develop new strategies and processes of adaptation. As the organisations age, the Isolating Processes become more important, and they are exposed to risk of obsolescence. At this point hazard rates are expected to increase with age because of highly inertial forms of organisational structure.(Barron, West and Hannan, 1994; Miller and Chen, 1994).

The approaches to organisational death are concerned with the application of the risks of being new, maturing, increasing age or being old. This view is mainly concerned with the idea that the risk of death to an organisation is connected to its age. Considering the appearance of Ecological, Generational and Isolating Processes which are related to the age of the organisation, we can see that the effects of time are not negative over time, nor do they increase in a monotonous manner.(Hannan, 1998).

In this study more emphasis is given to the direct effect of age on the organisational structure rather than the effects based on rigidity or change. At this juncture an external alignment approach was used in order to consider the subject in detail; it can be expressed as the amount of overlap between the structural elements and competence of an organisation and the demands of the environment in which it is situated.(Hannan, 1998).

It is observed that when organisations are first established they generally adapt to the environment in which they find themselves. In this framework, it can be seen that the performance of those organisations which adapt is generally at a high level. This results in an increase of organisational competence and a more effective use of existing competence. If organisations find that they do not adapt to the environment, they will experience a depreciation of their competence.

When we consider age from the viewpoint of organisational existence, it can usually be associated with learning and the strengthening of the external position. In the ecological approach to the relationship between organisations and their environments there are two main points of view. The first of these states that an organisation best adapts to its environment in the period when it is established. The other is that the activities of organisations tend to become rigid over time. If organisations attempt to change these, the risk to their life is increased.

7. Methodology

When we consider the survival functions of organisations, the question of how long organisations remain in markets comes to mind. How many years do they continue to be active in the market? In order to answer this question about organisational survival, it is necessary to determine the distance between two events: entry into and withdrawal from the market, or commencement and ending of operations. Due to the realities of the marketplace, it is difficult to give an answer to questions on this subject. Such events do not come about in the same way for all organisations. This demonstrates that not all organisations will withdraw from the market and bring their operations to a close. This complex structure creates difficulties in constructing a simple model for the situation. In this empirical study, the factors influencing organisational survival, with special reference to age, will be discussed. In the analysis of the subject, statistical life tables will be used. This technique was first used in the analysis of life knowledge. Every day important changes are experienced in the workplace, and it can be seen that these changes have a profound influence on organisational life. Risk functions play an important part in organisational life. This article employs a rational construct to reassess the death of organisations. Previous studies have determined that the risk of death risk of organisations depends on various factors. As argued above, theoretical studies suggest that organisations are especially at risk in three phases of their development; when they are new, when they are adolescent, and when they are old. In this study data from 188 companies founded in the Canakkale area will be used to assess whether organisations are at increased risk in these three stages of development.

8. Model

In the study, the life function model was used. The Life Table (LT) method is one in which data for the period of life is taken with regular intervals and converted into a frequency table which is then analysed for the purpose of calculating the life function for each interval.(Dell and Puig 1999; Ozdamar, 1999 425-427).

In the Life Table, columns contain the variables which relate to the risk of an organisation dying in any particular period. Rows contain the data for successive period, in this case for the 36 year period starting in 1963; each time interval is one year. The columns contain the following data:

Entries during this interval, n_i: The number of organisations which enter the interval. $n_{(i+1)}$ is calculated by subtracting those organisations which either die, or for which data is not available, from n_i.

Number of events ceasing to exist during interval, C_i: The number of organisations for which information ceases to be available during the interval. These organisations may not have died, and are therefore not included in the calculation of the risk of death of organisations. The estimates of the rates of death of organisations may therefore be low, but since peaks in organisational disappearance coincide with peaks in organisational deaths, the overall argument should not be affected.

Determination of number of risks, $n_i - 0.5*C_i$: The average number of organisations exposed to the risk of dying in the interval.

Number of events occurring during interval, r_i: The number of organisations recorded explicitly as dying within the interval, i.e. those which succumbed to the risk.

Probability of realisation of events, $r_i / (n_i - 0.5*C_i) = \lambda$: The proportion of those organisations exposed to the risk of death which succumb.
Rate of life, $p_i = 1 - \lambda$: The probability that an organisation entering the interval will not succumb to the risks of death.

Rate of accumulated life, $Y_i=p_i*Y_{i-1}$.: The probability that an organisation has survived, i.e. the previous rate of accumulated life multiplied the probability that it survived this interval.

Density probability, $f_i = Y_{i-1} * p_i$: Probability of risk of death for a living organisation in the time interval.

Death rate: the probability of an organisation dying in the interval, i.e. the raw probability of death, r_i, divided by the average probability that an organisation entering the interval will survive to the end of it, $(1 + p_i) / 2$
The standard error of Y_i is calculated thus:

$$S.E.(Y_i) = Y_i \sqrt{\sum_{j=1}^{i} \frac{q_j}{r_j p_j}}$$

The standard error of the probability of death is calculated using the following formula:

$$S.E.(f_i) = \frac{Y_i q_i}{h_i} \sqrt{\sum_{j=1}^{i-1} \frac{q_i}{(r_j p_j)} + \frac{p_i}{(r_i q_i)}}$$

The standard error of the probability of death (λ) is calculated as follows:

$$S.E.(\lambda_i) = \lambda_i \sqrt{\frac{1-(h_i \lambda_i / 2)^2}{r_i q_i}}$$

Since all standard areas are relatively large, because of the relatively small number of organisations for which there is data, some caution has to be exercised when attaching importance to fluctuations in variables in specific years.

9. Data Analysis and Results

The life tables obtained as a result of the study and general evaluations concerning them are presented below. Within the framework of this data, an attempt was made to determine the period of life, the life function, the life density function, the probability of sudden death, the death density function, the accumulated life functions and the accumulated death functions of 188 businesses in various sectors. The combined results for all 188 organisations are presented in Table 1, while the results for organisations in the Agricultural Sector, the Industrial Sector and the Service Sector are presented separately in Tables 2, 3 and 4 respectively.

Table 1 – All organisations

Start of life interval	Entries during this	Number of events ceasing to exist during interval	Determination of number of risks	Number of events occurring during interval	Probability of realisation of events	Rate of life	Rate of accumulated life	Density probability	Death rate	Standard error of accumulated life rate	Standard error of density probability	Standard error of death rate
,00	188,	,0	188,0	,0	,0000	1,0000	1,0000	,0000	,0000	,0000	,0000	,0000
1,0	0	6,0	185,0	3,0	,0162	,9838	,9838	,0162	,0163	0093	,0093	,0094
2,0	188,	15,	171,5	1,0	,0058	,9942	,9780	,0057	,0058	,0109	,0057	,0058
3,0	0	0	160,0	3,0	,0188	,9813	,9597	,0183	,0189	,0150	,0105	,0109
4,0	179,	6,0	146,5	5,0	,0341	,9659	,9270	**,0328**	,0347	,0204	,0144	,0155
5,0	0	15,	128,5	1,0	,0078	,9922	,9197	**,0072**	,0078	,0215	,0072	,0078
6,0	163,	0	114,5	1,0	,0087	,9913	,9117	,0080	,0088	,0227	,0080	,0088
7,0	0	11,	101,5	2,0	,0197	,9803	,8937	,0180	,0199	,0256	,0126	,0141
8,0	154,	0	90,5	,0	,0000	1,0000	,8937	,0000	,0000	,0256	,0000	,0000
9,0	0	15,	83,0	2,0	,0241	,9759	,8722	,0215	,0244	,0292	,0151	,0172
10,0	134,	0	75,5	,0	,0000	1,0000	,8722	,0000	,0000	,0292	,0000	,0000
11,0	0	9,0	70,5	,0	,0000	1,0000	,8722	,0000	,0000	,0292	,0000	,0000

12,0	122,	9,0	64,5	5,0	,0775	,9225	,8046	,0676	,0806	,0396	,0291	,0360
13,0	0	6,0	55,0	2,0	,0364	,9636	,7753	,0293	,0370	,0432	,0204	,0262
14,0	106,	5,0	49,0	2,0	,0408	,9592	,7437	,0316	,0417	,0469	,0220	,0295
15,0	0	5,0	44,0	1,0	,0227	,9773	,7268	,0169	,0230	,0488	,0167	,0230
15,0	95,0	7,0	41,0	1,0	,0244	,9756	,7091	,0177	,0247	,0507	,0175	,0247
17,0	86,0	2,0	32,5	3,0	,0923	,9077	,6436	,0655	,0968	,0584	,0363	,0558
18,0	78,0	6,0	23,0	,0	,0000	1,0000	,6436	,0000	,0000	,0584	,0000	,0000
19,0	73,0	,0	22,0	1,0	,0455	,9545	,6144	,0293	,0465	,0627	,0287	,0465
20,0	68,0	4,0	20,0	1,0	,0500	,9500	,5836	,0307	,0513	,0666	,0301	,0513
21,0	56,0	11,	17,0	1,0	,0588	,9412	,5493	,0343	,0606	,0710	,0335	,0606
22,0	52,0	0	14,5	2,0	,1379	,8621	,4735	,0758	,1481	,0789	,0507	,1045
23,0	44,0	2,0	10,5	,0	,0000	1,0000	,4735	,0000	,0000	,0789	,0000	,0000
24,0	43,0	,0	8,5	1,0	,1176	,8824	,4178	,0557	,1250	,0871	,0531	,1248
25,0	38,0	2,0	6,5	,0	,0000	1,0000	,4178	,0000	,0000	,0871	,0000	,0000
26,0	24,0	2,0	6,0	,0	,0000	1,0000	,4178	,0000	,0000	,0871	,0000	,0000
27,0	22,0	1,0	6,0	,0	,0000	1,0000	,4178	,0000	,0000	,0871	,0000	,0000
28,0	21,0	3,0	6,0	,0	,0000	1,0000	,4178	,0000	,0000	,0871	,0000	,0000
29,0	18,0	1,0	5,5	,0	,0000	1,0000	,4178	,0000	,0000	,0871	,0000	,0000
30,0	15,0	1,0	5,0	,0	,0000	1,0000	,4178	,0000	,0000	,0871	,0000	,0000
31,0	12,0	,0	5,0	1,0	,2000	,8000	,3343	,0836	,2222	,1022	,0767	,2208
32,0	9,0	,0	4,0	,0	,0000	1,0000	,3343	,0000	,0000	,1022	,0000	,0000
33,0	7,0	,0	3,5	,0	,0000	1,0000	,3343	,0000	,0000	,1022	,0000	,0000
34,0	6,0	1,0	3,0	,0	,0000	1,0000	,3343	,0000	,0000	,1022	,0000	,0000
35,0	6,0	,0	2,5	,0	,0000	1,0000	,3343	,0000	,0000	,1022	,0000	,0000
36,0+	6,0	,0	1,0	,0	,0000	1,0000	,3343	**	**	,1022	**	**
	6,0	,0										
	5,0	1,0										
	5,0	,0										
	4,0	1,0										
	4,0	2,0										
	3,0											
	3,0											
	2,0											

Source: Author´s calculations.

The main method of analysing the interval between events is by using the life tables. Some of the most important questions faced by many scientists and practitioners in the competitive market of today are, when are organisations established and why do they disappear? In order to answer these questions it is necessary to be in possession of basic data. We can see that this process is not realised in the same way for all organisations, because not all organisations start or abandon operations at the same time on the same day. This requires the subject to be considered in greater depth.

The basic technique used for the main analysis of this type of data is the life table approach. The basic idea behind the life tables is that of knowing the starting and finishing dates. To illustrate the subject briefly with an example, if a question is asked regarding the life expectancy of a large scale organisation, it is possible to find information on the subject in the official institutions of such concerns. By making use of such data, the opening and closing dates of organisations can be learned. Theory suggests, as described above, that it is a mistake to consider organisations which die in

the market only from the point of view of average age. This also goes for businesses which are still operational in the market. For example, we can see that three firms were closed down in the first year of their establishment. It would thus be wrong to base the average period of life on these firms. In order to carry out a reliable analysis of the situation, information concerning businesses continuing to operate in the market and those which have stopped operations is required.

The mean period of life obtained from the data resulting from our study is given beneath the tables. This is taken as the time at which the value of the rate of accumulated life fell below 0.5 . This shows that more than half of the firms were faced with a negative conclusion after more than 23 years. Linear interpolation was used to calculate the value of 22.65.

By the end of 23 years, more than half the organisations have withdrawn from the market. After 31 years, only 33% of the organisations remain in the market. The remainder will have ceased their operations. When this ratio is analysed, we generally see that the rate of company failure shows a tendency to decrease as compared with the earlier time period. We could say that organisations are removed from the market as time progresses. Until their twenties, organisations show a gradual tendency to decrease. Until the thirties there is a levelling off, but after this stage a sharp drop is once again experienced and only 30% of the existing organisations are able to survive the market conditions. In other words, thirty years after they were first established, the life of 70% of organisations has come to an end.

If we look at the probability of death, and the death rate in the Life table, we can see that the death rate is high in the early period, rises to a peak again around the years 18 to 22, and then levels off with occasional peaks, as in year 31. This suggests that there is evidence of companies succumbing to the risk of newness, and to the risk of adolescence. The risk of obsolescence is also probably present, although because so few companies continue at this stage, the peaks produced by the death of single companies may exaggerate this effect.

Similar patterns can be identified in Tables 2, 3 and 4. As one would expect, as these sectors provide distinct environments for the organisations within them, there are variations in the years in which the death rate peaks.

Table 2 – Organisations in the agricultural and animal husbandry sector

Start of life interval	Entries during this	Number of events ceasing to exist during interval	Determination of number of risks	Number of events occurring during interval	Probability of realisation of events	Rate of life	Rate of accumulated life	Density probability	Death rate	Standard error of accumulated life rate	Standard error of density probability	Standard error of death rate
,00	36	0	36	0	,0000	1,0000	1,000	,0000	0000	,0000	,0000	,0000
1,0	36	1	35.5	1	,0282	,9718	,9718	,0282	,0286	,0278	,0278	,0286
2,0	34	2	33	0	,0000	1,000	,9718	,0000	,0000	,0278	,0000	,0000
3,0	32	2	31	0	,0000	1,000	,9718	,0000	,0000	,0278	,0000	,0000
4,0	30	2	29	1	0345	,9655	,9383	,0335	,0351	,0425	,0329	,0351
5,0	27	3	25.5	1	,0392	,9608	,9015	,0368	,0400	,0545	,0361	,0400
6,0	23	3	22.1	0	,0000	1,000	,9015	,0000	,0000	,0545	,0000	,0000
7,0	20	2	19	0	,0000	1,000	,9015	,0000	,0000	,0545	,0000	,0000
8,0	18	1	17.5	0	,0000	1,000	,9015	,0000	,0000	,0545	,0000	,0000
9,0	17	1	16.5	0	,0000	1,000	,9015	,0000	,0000	,0545	,0000	,0000
10,0	16	1	15.5	0	,0000	1,000	,9015	,0000	,0000	,0545	,0000	,0000
11,0	15	0	15	0	,0000	1,000	,9015	,0000	,0000	,0545	,0000	,0000
12,0	15	1	14.5	0	,0000	1,000	,9015	,0000	,0000	,0545	,0000	,0000
13,0	14	0	14	1	,0714	,9286	,8371	,0644	,0741	,0800	,0622	,0740
14,0	13	0	13	0	,0000	1,000	,8371	,0000	,0000	,0800	,0000	,0000
15,0	13	0	13	1	,0769	,9231	,7727	,0644	,0800	,0964	,0622	,0799
15,0	12	0	12	1	,0833	,9167	,7083	,0644	,0870	,1077	,0622	,0869
17,0	11	2	10	0	,0000	1,000	,7083	,0000	,0000	,1077	,0000	,0000
18,0	9	1	8.5	0	,0000	1,000	,7083	,0000	,0000	,1077	,0000	,0000
19,0	8	0	8	0	,0000	1,000	,7083	,0000	,0000	,1077	,0000	,0000
20,0	8	0	8	1	,1250	,8750	,6198	,0885	,1333	,1255	,0839	,1330
21,0	7	0	7	0	,0000	1,000	,6198	,0000	,0000	,1255	,0000	,0000
22,0	7	1	6.5	0	,0000	1,000	,6198	,0000	,0000	,1255	,0000	,0000
23,0	6	2	5	0	,0000	1,000	,6198	,0000	,0000	,1255	,0000	,0000
24,0	4	1	3.5	0	,0000	1,000	,6198	,0000	,0000	,1255	,0000	,0000
25,0	3	0	3	0	,0000	1,000	,6198	,0000	,0000	,1255	,0000	,0000
26,0	3	0	3	0	,0000	1,000	,6198	,0000	,0000	,1255	,0000	,0000
27,0	3	0	3	0	,0000	1,000	,6198	,0000	,0000	,1255	,0000	,0000
28,0	3	0	3	0	,0000	1,000	,6198	,0000	,0000	,1255	,0000	,0000
29,0	3	1	2.5	0	,0000	1,000	,6198	,0000	,0000	,1255	,0000	,0000
30,0	2	0	2	0	,0000	1,000	,6198	,0000	,0000	,1255	,0000	,0000
31,0	2	0	2	1	,5000	,5000	,3099	,3099	,6667	,2279	,2279	,6285
32,0	1	0	1	0	,0000	1,000	,3099	,0000	,0000	,2279	,0000	,0000
33,0	1	0	1	0	,0000	1,000	,3099	,0000	,0000	,2279	,0000	,0000
34,0	1	0	1	0	,0000	1,000	,3099	,0000	,0000	,2279	,0000	,0000
35,0	1	0	1	0	,0000	1,000	,3099	,0000	,0000	,2279	,0000	,0000
36,0+	1	1	0.5	0	,0000	1,000	,3099	**	**	,2279	**	**

Source: Author´s calculations.

Table 3 – Organisations in the industrial sector

Start of life interval	Entries during this	Number of events ceasing to exist during interval	Determination of number of risks	Number of events occurring during interval	Probability of realisation of events	Rate of life	Rate of accumulated life	Density probability	Death rate	Standard error of accumulated life rate	Standard error of density probability	Standard error of death rate
,00	90	0	90	0	,0000	1,0000	1,0000	,0000	,0000	,0000	,0000	,0000
1,0	90	3	88,5	2	,0226	,9774	,9774	,0226	,0229	,0158	,0158	,0162
2,0	85	9	80,5	1	,0124	,9876	,9653	,0121	,0125	,0197	,0121	,0125
3,0	75	2	74	3	,0405	,9595	,9261	,0391	,0414	,0291	,0221	,0239
4,0	70	6	67	1	,0149	,9851	,9123	,0138	,0150	,0318	,0137	,0150
5,0	63	4	61	0	,0000	1,0000	,9123	,0000	,0000	,0318	,0000	,0000
6,0	59	8	55	1	,0182	,9818	,8957	,0166	,0183	,0353	,0164	,0183
7,0	50	4	48	2	,0417	,9583	,8584	,0373	,0426	,0426	,0259	,0310
8,0	44	5	41,5	0	,0000	1,0000	,8584	,0000	,0000	,0426	,0000	,0000
9,0	39	3	37,5	1	,0267	,9733	,8355	,0229	,0270	,0472	,0226	,0270
10,0	35	1	34,5	0	,0000	1,0000	,8355	,0000	,0000	,0472	,0000	,0000
11,0	34	2	33	0	,0000	1,0000	,8355	,0000	,0000	,0472	,0000	,0000
12,0	32	4	30	1	,0333	,9667	,8077	,0279	,0339	,0532	,0274	,0339
13,0	27	0	27	1	,0370	,9630	,7777	,0299	,0377	,0590	,0294	,0377
14,0	26	4	24	1	,0417	,9583	,7453	,0324	,0426	,0649	,0318	,0425
15,0	21	0	21	0	,0000	1,0000	,7453	,0000	,0000	,0649	,0000	,0000
15,0	21	4	19	0	,0000	1,0000	,7453	,0000	,0000	,0649	0000	,0000
17,0	17	7	13,5	2	,1481	,8519	,6349	,1104	,1600	,0908	,0727	,1128
18,0	8	1	7,5	0	,0000	1,0000	,6349	,0000	,0000	,0908	,0000	,0000
19,0	7	0	7	1	,1429	1,0000	,5442	,0907	,1538	,1145	,0850	,1534
20,0	6	0	6	0	,0000	,75000	,5442	,0000	,0000	,1145	,0000	,0000
21,0	6	2	5	0	,0000	1,0000	,5442	,0000	,0000	,1145	,0000	,0000
22,0	4	0	4	1	,2500	1,0000	,4082	,1361	,2857	,1458	,1213	,2828
23,0	3	0	3	0	,0000	1,0000	,4082	,0000	,0000	,1458	,0000	,0000
24,0	3	0	3	0	,0000	1,0000	,4082	,0000	,0000	,1458	,0000	,0000
25,0	3	0	3	0	,0000	1,0000	,4082	,0000	,0000	,1458	,0000	,0000
26,0	3	0	3	0	,0000	1,0000	,4082	,0000	,0000	,1458	,0000	,0000
27,0	3	0	3	0	,0000	1,0000	,4082	,0000	,0000	,1458	,0000	,0000
28,0	3	0	3	0	,0000	1,0000	,4082	,0000	,0000	,1458	,0000	,0000
29,0	3	0	3	0	,0000	1,0000	,4082	,0000	,0000	,1458	,0000	,0000
30,0	3	0	3	0	,0000	1,0000	,4082	,0000	,0000	,1458	,0000	,0000
31,0	3	0	3	0	,0000	1,0000	,4082	,0000	,0000	,1458	,0000	,0000
32,0	3	0	3	0	,0000	1,0000	,4082	,0000	,0000	,1458	,0000	,0000
33,0	3	1	2,5	0	,0000	1,0000	,4082	,0000	,0000	,1458	,0000	,0000
34,0	2	0	2	0	,0000	1,0000	,4082	,0000	,0000	,1458	,0000	,0000
35,0	2	1	1,5	0	,0000	1,0000	,4082	,0000	,0000	,1458	,0000	,0000
36,0+	1	1	0,5	0	,0000	1,0000	,4082	**	**	,1458	**	**

Source: Author´s calculations.

Table 4 – Organisations in the service sector

Start of life interval	Entries during this	Number of events ceasing to exist during interval	Determination of number of risks	Number of events occurring during interval	Probability of realisation of events	Rate of life	Rate of accumulated life	Density probability	Death rate	Standard error of accumulated life rate	Standard error of density probability	Standard error of death rate
,00	62	0	62	0	,0000	1,0000	1,0000	,0000	,0000	,0000	,0000	,0000
1,0	62	2	61	0	,0000	1,0000	1,0000	,0000	,0000	,0000	,0000	,0000
2,0	60	4	58	0	,0000	1,0000	1,0000	,0000	,0000	,0000	,0000	,0000
3,0	56	2	55	0	,0000	1,0000	1,0000	,0000	,0000	,0000	,0000	,0000
4,0	54	7	50	3	,0594	,9406	,9406	,0594	,0612	,0333	,0333	,0353
5,0	44	4	42	0	,0000	1,0000	,9406	,0000	,0000	,0333	,0000	,0000
6,0	40	4	38	0	,0000	1,0000	,9406	,0000	,0000	,0333	,0000	,0000
7,0	36	3	34,5	0	,0000	1,0000	,9406	,0000	,0000	,0333	,0000	,0000
8,0	33	3	31,5	0	,0000	1,0000	,9406	,0000	,0000	,0333	,0000	,0000
9,0	30	2	29	1	,0345	,9655	,9082	,0324	,0351	,0452	,0319	,0351
10,0	27	3	25,5	0	,0000	1,0000	,9082	,0000	,0000	,0452	,0000	,0000
11,0	24	3	22,5	0	,0000	1,0000	,9082	,0000	,0000	,0452	,0000	,0000
12,0	21	2	20	4	,2000	,8000	,7265	,1816	,2222	,0889	,0817	,1104
13,0	15	2	14	0	,0000	1,0000	,7265	,0000	,0000	,0889	,0000	,0000
14,0	13	2	12	1	,0833	,9167	,6660	,0605	,0870	1,0000	,0584	,0869
15,0	10	0	10	0	,0000	1,0000	,6660	,0000	,0000	1,0000	,0000	,0000
15,0	10	0	10	0	,0000	1,0000	,6660	,0000	,0000	1,0000	,0000	,0000
17,0	10	2	9	1	,1111	,8889	,5920	,0740	,1176	,1130	,0706	,1170
18,0	7	0	7	0	,0000	1,0000	,5920	,0000	,0000	,1130	,0000	,0000
19,0	7	0	7	0	,0000	1,0000	,5920	,0000	,0000	,1130	,0000	,0000
20,0	7	2	6	0	,0000	1,0000	,5920	,0000	,0000	,1130	,0000	,0000
21,0	5	0	5	1	,2000	,8000	,4736	,1184	,2222	,1392	,1083	,2208
22,0	4	0	4	1	,2500	,7500	,3552	,1184	,2857	,1464	,1083	,2828
23,0	3	1	2,5	0	,0000	1,0000	,3552	,0000	,0000	,1464	,0000	,0000
24,0	2	0	2	1	,5000	,5000	,1776	,1776	,6667	,1453	,1453	,6285
25,0	1	1	0,5	0	,0000	1,0000	,1776	,0000 *	,0000	1453	,0000	,0000

Source: Author´s calculations.

The mean periods of life for the three types of sector considered above was evaluated using the Gehan test and it was discovered that there was no significant difference between them (χ^2=0736,sd=2,P<0.001).

10. Conclusion

When we look at the sectors, it can be seen that the mean period of life in the agriculture and animal husbandry sector is 31.39. The highest probability of an organisation suffering a closing event is 0.5 and occurs in firms aged 31. The highest risk of death is 0.67 and can once again be seen at age 31. As there is only a single business concerned, the standard error is very high. The age intervals of the living businesses in the sector is seen to be about 5.6 years.

With regard to the ages at death of the businesses in this sector, they occurred at ages 1, 4, 5, 13, 15, 16, 20 and 31. It can be seen that 0.60 of the businesses in the sector survived until the age of 31, but just after this age only 0.30 were able to remain in the market.

The mean period of life in the industrial sector is seen to be 22.32. The probability of a fatal event taking place is 0.25 in businesses at twenty years of age. The risk of death was calculated to be 0.29. As only a single firm was concerned, the standard error was of a high value. The age interval of firms surviving in the sector consists to a large extent of the populations of businesses of ages 6 and 17.

The mean period of life in the service sector is seen to be 21.78. The highest probability of a fatal event taking place is 0.25 in businesses aged 22. The risk of death was calculated to be 0.29. As only a single firm was concerned, the value of the standard error is very high. The age interval of firms surviving in this sector generally occurs in firms aged 4 years and consists of a large part of the population. It is seen that no business died within the first three years.

The three sectors separately show very similar patterns to those evident in Table 1, and discussed in detail above.

In this study we have used data from the Canakkale region in Turkey to illustrate the Life table method of reviewing the probability that an organisation will die within a particular time period. The period of Canakkale has been chosen for two reasons; the data is readily available, and the region represents a small, and therefore hopefully homogeneous environment for organisations. The analysis suggests that organisations are especially at risk when they are very young, when they reach a certain maturity (or adolescence) and when they are old.

This bears out the predictions of both main theories for studying the relationship between an organisation and its environment. The population-environment approach suggests that organisations survive if they are well adapted to their environment, and therefore are particularly vulnerable in the very early years, or, if there are changes in the environment, in later years. The adaptable approach suggests that organisations learn to adapt to their environment, and therefore are most at risk in the early years before they have learned about their environment, or in their later years when previous adaptation has led to rigidity in the organisation.

It would be desirable that more work be done to apply such theories to empirical data. This study has shown how such information about actual organisations can be used effectively.

Abstract

Obecné chování organizací bylo popsáno dvěma základními teoriemi: populačně enviromentální teorií a adaptační teorií. Je zřejmé, že tyto dva přístupy vysvětlující existenci organizací se v mnoha bodech vzájemně doplňují. Oba přístupy se pokouší vysvětlit existenci a fungování organizací. Jestliže vezmeme v úvahu strategii, která má důležitou úlohu ve vývoji organizací společně s věkem organizace, pak je možné pozorovat, že tyto rozměry ovlivňují riziko přežití organizací různými způsoby. V příspěvku jsou použita k vyšetření pravděpodobnosti, že během období jejich fungování přestanou existovat data o přežití obchodních organizacích v regionu Canakkale v Turecku. Počet společností v příspěvku je nízký, proto musí být výsledky vnímány s obezřetností. Nicméně jsou zde známky efektů předpovídaných oběma přístupy; společnosti čelí zvýšenému riziku zániku ve třech etapách své existence.

References

[1] AKIN, G. How long do things last. *Journal of Organizational Change Management,* Vol**.** 13, No**.**1, pp. 30-31, 2000.

[2] ALDRICH,H.E. *Organizations and Environments*. Englewood Cliffs, NJ: Prentice-Hall, 1979.

[3] AMBURGEY, T.L.and RAO, H. Organizational Ecology: Past, Present and Future Direction. *Academy of Management Journal*, Vol. 39, No.5, pp 1265-1286, 1996.

[4] AMBURGEY, T.L., KELLY, D. and BARNETT, W.P. Resetting the Clock: The Dynamics of Organizational Change and Failure**.** Administrative Science Quarterly, 38, pp. 51-73, 1993.

[5] BARNETT, C.K. and PRATT, M.G. From threat-rigidity to flexibility - Toward a learning model of autogenic crisis in organizations. *Journal of Organizational Change Management*, Vol**.** 13, No**.**1, pp. 74-88, 2000.

[6] BARNETT, W.P. The Dynamics of Competitive Intensity. *Administrative Science Quarterly*, 42, pp. 128-160, 1997.

[7] BARRON D.N., WEST E. and HANNAN M.T. A time to grow and a time to die: Growth and mortality of credit unions in New York City: 1914-1990. *American Journal of Sociology*, 100, pp.381-421, 1994.

[8] BAUM, J,A.C. and SINGH J.V. Organizational Niche Overlap And The Dynamics Of Organizational mortality. *American Journal of Sociology*, 100, pp. 346-380, 1994.

[9] BAUM, J.A. and OLIVER, C. Toward an Institutional Ecology of Organizational Founding. *Academy of Management Journal*, Vol.39, No.5, pp. 1378-1427, 1996.

[10] BAUM, J.A.C. and OLIVER, C. Institutional Linkages and Organizational Mortality. *Administrative Science Quarterly*, 36, pp. 187-218, 1991.

[11] BOEKER, W. Organizational Strategy: An Ecological Perspective. *Academy of Management Journal,* Vol. 34, No.3, pp. 613-635, 1991.

[12] BONN, I. Staying on top: characteristics of long-term survival. *Journal of Organizational Change Management*, Vol. 13, No.1, pp.32-48, 2000.

[13] BRUDERER, E. and SINGH J.V. Organizational Evolution, Learning, and Selection: A Genetic - Algorıtm-Based Model. *Academy of Management Journal*, 39, pp. 1315-1349, 1996.

[14] BRÜDERL, J. and SCHÜSSLER, R. Organizational Mortality: The Liabilities of Newness and Adolescence. *Administrative Science Quarterly*, 35, pp. 530-547, 1990.

[15] CAROLL, G. Concentration and Specialization: Dynamics of Wide Width in Population of Organization. *American Journal of Sociology*, 90, pp. 1262-1283, 1985.

[16] DEEPHOUSE, D.L. Does Isomorphism Legitimate. *Academy of Management Journal,* 39, pp. 1024-1039, 1996.

[17] FICHMAN, M. and LEVINTHAL D.A. Honeymoons and the liability of adolescence:A new perpective on duration dependence in social and organizational relationships. *Academy of Management Review*, 16, pp. 442-468, 1991.

[18] FREEMAN, J. and BOEKER W. The Ecological Analysis of Business Strategy. *Californıa Management Review*, 26, pp. 73-110, 1984.

[19] GREVE, H.R. Pattern of Competition: The Diffusion of a Market Position in Radio Broadcasting. *Administrative Science Quarterly*, 41, pp. 29-60, 1996.

[20] HANNAN, M.T. and FREEMAN, J. *Organizational Ecology.* Harvard University Press, 1989.

[21] HANNAN, M.T. and FREEMAN, J. The Population Ecology of Organizations. *American Journal of Sociology*, 82, pp. 929-964, 1997.

[22] HANNAN, M.T. and CARROLL ,G.R. *Dynamics of Organizational Population Density, Legitimation, and Competition*. Oxford University Press, 1992.

[23] HANNAN, M.T. and FREEMAN ,J. Structural Inertia and Organizational Change. *American Sociological Review*, 49, pp. 149-164, 1984.

[24] HANNAN, M.T. and FREEMAN, J. The Ecology of Organizational Founding: American Labor Unions, 1836-1985. *American Journal of Sociology*, 94, pp. 910-943, 1998.

[25] HANNAN, M.T. Rethinking Age Dependence in Organizational Mortalitiy: Logical Formalizations. American Journal of Sociology, 104, pp. 25-52, 1998.

[26] HENDERSON, A.D. Firm Strategy and Age Dependence: A Contingent View of the Liabilities of Newness, Adolescence, and Obsolescence. *Administrative Science Quarterly*, 44, pp 281-314, 1999.

[27] KONZ, G.N.P. and KATZ, J.A. Metapopulation analysis: a technique for studying hyperlongevity. *Journal of Organizational Change Management.* Vol**.** 13, No**.**1, pp.49-60, 2000.

[28] KOCEL, T. *Isletme Yoneticiligi***,** Beta Yayınları, 2001.

[29] KRELL, T.C. Organizational longevity and technological change. *Journal of Organizational Change Management*, Vol**.** 13, No**.**1, pp. 8-14, 2000.

[30] LEBLEBICI,H., SALANCIK, G.R., COPAY, A., KING, T. Institutional Change and the Transformation of Interorganizational Fields: An Organizational History of the U.S. Radio Broadcasting Industry. *Administrative Science Quarterly.* 36, pp 333-363, 1991.

[31] LEVINTHAL,D.A. Random walks and organizational mortality. *Administrative Science Quarterly.* 36,1991. 36, pp.397 -420, 1991.

[32] LEVINTHAL, D.A. and FICHMAN, M. Dynamics of interorganizational attachments: Auditor-client relationships. *Administrative Science Quarterly,* 33, pp. 345-369, 1988.

[33] LOMI, A. The Population Ecology of Organizational Founding: Location Dependence and Unobserved Heterogeneity. *Administrative Science Quarterly.* 40, pp. 111-144, 1995.

[34] MCKELVEY, B. and ALDRICH, H.E. Populations,Natural Selection snd Applied Organizational Science. *Administrative Science Quarterly.* 28, pp.101-128, 1983.

[35] MILLER, D. and JER CHEN, M. Sources and Consequences of Competitive Inertia: A Study of the U.S. Airline Industry. *Administrative Science Quarterly***,** 39, pp. 1-23, 1994.

[36] MONTUORI, L.A. Organizational longevity - Integrating systems thinking, learning and conceptual complexity. *Journal of Organizational Change Management,* Vol**.** 13, No**.**1, pp. 61-73, 2000.

[37] OZDAMAR, K. *SPSS ile Biyoistatistik*. Kaan Kitapevi, 1999.

[38] PORSANDER, L. Translating a dream of immortality in a (con)temporary order. *Journal of Organizational Change Management*, Vol**.** 13, No**.**1, pp 14-29, 2000.

[39] SINGH, H.V., HOUSE, R.J. and TUCKER; D.J. Organizational Change and Organizational Mortality**.** *Administrative Science Quarterly*. 31,:pp 587-611, 1986.

[40] SUK, M. and CHWE, Y. Structure and Strategy in Collective Action. *American Journal of Sociology*. 105, pp. 128-56, 1999.

[41] SUTTON, R.I. The Process of Organizational Death: Disbanding and Reconnecting. *Administrative Science Quarterly*, 32, pp. 542-569, 1987.

[42] SWAWMATHAN, A. Environmental Conditions at Founding and Organizational Mortality: A Trial -by-Fire Model. *Academy of Management Journal*, 49, pp. 1350-1377, 1996.

PRESENTATION

DEVELOPMENT OF CAPITAL MARKET REGULATION IN THE SLOVAK REPUBLIC

Ivan Šramko
Deputy Governor
National Bank of Slovakia
8th International Scientific Conference, Karviná, 15 - 16 October 2003

Independence – Principle of Effective Supervision

Independence of Supervisory Authority:

- **Legislative:**

The law must explicitly stipulate that the supervisory authority acts independently when performing its function.

- **Personal:**

The law specifies the procedure of appointing and removing managerial staff; this procedure must be transparent;

The term of office of a manager should be longer than the term of the authority responsible for their appointment/removal.

- **Financial:**

The supervisory authority must have its own budget and resources defined by the law independent of the state.

Independence of Supervisory Authorities - Slovak Republic Status Quo

Independence of Supervisory Authority:

- **Legislative:**

The law must explicitly stipulate that the supervisory authority acts independently when performing its function.

- **Personal:**

The law specifies the procedure of appointing and removing managerial staff; this procedure must be transparent;

The term of office of a manager should be longer than the term of the authority responsible for their appointment/removal.

- **Financial:**

The supervisory authority must have its own budget and resources defined by the law independent of the state.

Financial Market Regulation and Supervision - Institutional Setting in the Slovak Republic

Table 1 - Financial Market Regulation and Supervision - Institutional Setting in the Slovak Republic

	Before 2000				2000 - 2004				2004 - 2005				2006
Supervision	NBS	MF	FMA	ML	NBS	MF	FMA	ML	NBS	MF	FMA	ML	NBS
Banking	•				•				•				•
Insurance		•					•				•		•
Securities dealers		•					•				•		•
SPI – Pillar III				•				•			•		•
Pillars I and II								•			•		•
Regulation (secondary)	•	•			•	•			•	•			•

Source: NBS - National Bank of Slovakia, MF - Ministry of Finance, FMA - Financial Market Authority, ML - Ministry of Labour and Social Affairs, SPI - supplementary pension insurers, Pillars I, II and III of insurance – should be implemented after 2004

Process of Supervisory Authorities Integration in the Slovak Republic

Table 2 - Process of Supervisory Authorities Integration in the Slovak Republic

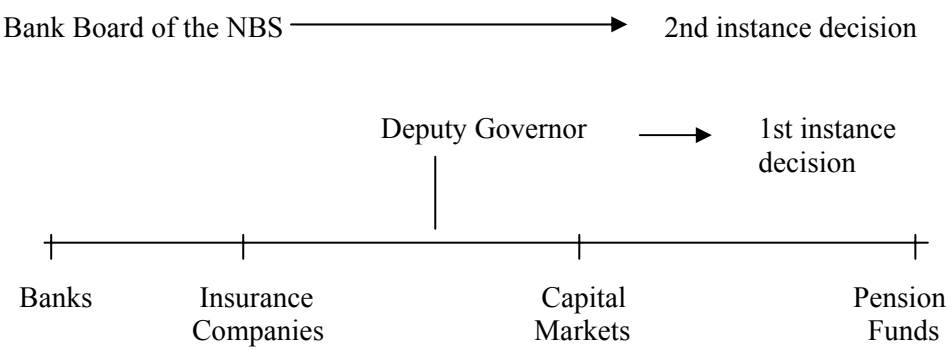
	2000 - 2002	2002 - 2005	2006
Independent supervisory authorities the NBS and the FMA - *not integrated*	•		
Non-institutional integration 1. through the representation of the NBS in the FMA bodies: • 1 member of the FMA Board is appointed by the government on proposal of the NBS Governor; • Deputy Chairman of the FMA Supervisory Committee is appointed by the government on proposal of the NBS Governor; 2. Memorandum of Understanding between the NBS and the FMA		• •	
Institutional integration into the NBS			•

Decision-making Process - Status Quo

Table 3 - Decision-making Process - Status Quo

National Bank of Slovakia	**Financial Market Authority**
• 1st instance decision ↓ Banking Supervision CEO	• 1st instance decision ↓ FMA Director General
• 2nd instance decision ↓ NBS Bank Board	• 2nd instance decision ↓ FMA Board

Decision-making and Management Process after Integration into the National Bank of Slovakia



Legislative Framework

- Act No. 566/1992 Coll. on the National Bank of Slovakia (as amended)
- Act No. 483/2001 Coll. on Banks (as amended)
- Act No. 429/2000 Coll. on Stock Exchange (as amended)
- Act No. 566/2001 Coll. on Securities and Investment Services (as amended)
- Act No. 530/1990 Coll. on Bonds (as amended)
- Act No. 385/1999 Coll. on Collective Investment (as amended)
- Act No. 95/2002 Coll. on Insurance (as amended)
- Act No. 381/2001 Coll. on Motor Third Party Liability (as amended)
- Law(s) regulating activities of entities established to administer assets within the capitalization pillar of pension insurance (Pillar II)
- Law regulating activities of entities established as a result of the transformation of supplementary pension insurers (Pillar III)
- Secondary legislation to the above laws

LIST OF AUTHORS:

Robert Balik, Ph.D.
Haworth College of Business, Western Michigan University, Kalamazoo, USA

Ing. Jaroslav Belás, PhD.
Národohospodárska fakulta, Ekonomická univerzita Bratislava

Ing. Monika Bialonczyková
Obchodně podnikatelská fakulta Karviná, Slezská univerzita Opava

RNDr. František Čámský
Ekonomicko-správní fakulta, Masarykova univerzita Brno

Doc. Dr. Ing. Dana Dluhošová
Ekonomická fakulta, Vysoká škola báňská – Technická univerzita Ostrava

Ing. Barbora Drugdová
Národohospodárska fakulta, Ekonomická univerzita Bratislava

Ing. Dana Forišková
Ekonomická fakulta, Vysoká škola báňská – Technická univerzita Ostrava

Ing. Ľubomír Garaj
Národohospodárska fakulta, Ekonomická univerzita Bratislava

Ing. Mgr. Zdeněk Husták
Komise pro cenné papíry Praha

Ing. Jana Janoušková, Ph.D.
Obchodně podnikatelská fakulta Karviná, Slezská univerzita Opava

Aina Joppe, MSc.
Fakulty of Economics and Management, University of Latvia, Latvia

Ing. František Kalouda, MBA
Ekonomicko-správní fakulta, Masarykova univerzita Brno

Ing. Eva Kafková, PhD.
Podnikohospodárska fakulta, Ekonomická univerzita Košice

Magdaléna Karchová
Podnikohospodárska fakulta, Ekonomická univerzita Košice

Ass. prof. Dr. Murat Kasimoglu
Canakkale Onsekiz Mart University, Biga, Canakkale, Turkey

Doc. Ing. Mária Klimíková, PhD.
Národohospodárska fakulta, Ekonomická univerzita Bratislava

Ing. Miroslav Kmeťko
Fakulta podnikového manažmentu, Ekonomická univerzita Bratislava

Doc. Ing. Zdeněk Korauš, PhD.
Národohospodárska fakulta, Ekonomická univerzita Bratislava

Ing. Kateřina Kořená
Ekonomická fakulta, Vysoká škola báňská – Technická univerzita Ostrava

Ing. Karel Kořený
Obchodně podnikatelská fakulta Karviná, Slezská univerzita Opava

Ing. Peter Krištofík, PhD.
Fakulta Financií, Univerzita Mateja Bela Banská Bystrica

Ing. Petr Lichnovský
Ekonomická fakulta, Vysoká škola báňská – Technická univerzita Ostrava

Ing. Filip Mach
WestLB London

Ing. Roman Matoušek, M. A., Ph.D.
London Metropolitan University, London, England

Ing. Stanislav Matuszek
Obchodně podnikatelská fakulta Karviná, Slezská univerzita Opava

Ing. Branislav Mikovíny
Fakulta Financií, Univerzita Mateja Bela Banská Bystrica

Ing. Štefan Panenka
Národohospodárska fakulta, Ekonomická univerzita Bratislava

Prof. RNDr. PhDr. Stanislav Polouček, CSc.
Obchodně podnikatelská fakulta Karviná, Slezská univerzita Opava

Katarína Radvadská
Podnikohospodárska fakulta, Ekonomická univerzita Košice

Ing. Michaela Roubíčková, Ph.D.
Obchodně podnikatelská fakulta Karviná, Slezská univerzita Opava

Ing. Petra Růčková, Ph.D.
Obchodně podnikatelská fakulta Karviná, Slezská univerzita Opava

Doc. Ing. Jaroslav Sedláček, CSc.
Ekonomicko-správní fakulta, Masarykova univerzita Brno

Doc. Ing. Eva Sikorová, CSc.
Obchodně podnikatelská fakulta Karviná, Slezská univerzita Opava

Doc. Ing. Jaroslav Slepecký, PhD.
Fakulta špeciálného inžinierstva, Žilinská univerzita Žilina

Ing. Daniel Stavárek
Obchodně podnikatelská fakulta Karviná, Slezská univerzita Opava

Mag. oec. Zhanna Svarinska
Fakulty of Economics and Management, University of Latvia, Latvia

JUDr. Jindřiška Šedová, CSc.
Ekonomicko-správní fakulta, Masarykova univerzita Brno

RNDr. Jarmila Šlechtová
Obchodně podnikatelská fakulta Karviná, Slezská univerzita Opava

Ing. Ivan Šramko
Národná banka Slovenska Bratislava

Ing. Tomáš Tichý
Ekonomická fakulta, Vysoká škola báňská – Technická univerzita Ostrava

Ing. Ivo Veselý
Obchodně podnikatelská fakulta Karviná, Slezská univerzita Opava

Ing. Pavla Vodová
Obchodně podnikatelská fakulta Karviná, Slezská univerzita Opava

Doc. Dr. Ing. Zdeněk Zmeškal
Ekonomická fakulta, Vysoká škola báňská – Technická univerzita Ostrava

The conference was arranged
with financial contribution of following institutions:

ČESKOMORAVSKÁ
ZÁRUČNÍ A ROZVOJOVÁ
BANKA, a.s.

Severomoravské vodovody
a kanalizace Ostrava a.s.

OFO

OPAVSKÁ FINANČNĚ OBCHODNÍ
a. s.

UNIVERSITAS SILESIANA OPAVIENSIS
MCMXCI

Title: **Regulation and Supervision of the Capital Market**

Editors: Stanislav Polouček
Marek Dohnal

Publisher: Silesian University Opava
School of Business Administration Karviná

Number of Pages: 345

Printing: 150

Printing Office: Printing Office Kleinwächter, Frýdek - Místek

ISBN 80-7248-215-7