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PUBLIC PRIVATE PARTNERSHIP AT PUBLIC TRANSPORTATION COMPANY IN MACEDONIA

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Abstract

Public private partnership - PPP in Macedonia potentially is desirable instrument but should be approached carefully within a system. The usual model used in Macedonia is concession and less or non private finance initiative. The private finance initiative requires more focus on the value for money research and risk analysis among all and building trust among potential partners as well. This paper illustrates the main elements of the PPP study prepared for the public transportation company JSP Skopje in Macedonia.

Keywords: public private partnership, value for money, public sector comparator, public services, public transportation.

I. NEEDS ANALYSES

Needs and goals of the study

Public Transportation Company SKOPJE - Skopje (known as JSP) is a company of public interest for the city of Skopje. The main activity is transport of passengers in the public urban and suburban areas.

According to the needs of JSP, it is necessary to start with:

- Reconstruction and standardization of the bus stops of the network lines in the city of Skopje,

- Establishment of the technical requirements for the implementation of the second phase of the implementation of automatic tracking of vehicles from the public transport and placing electronic information displays, from which passengers will be constantly and accurately informed for the time and dynamic for arriving of the buses at the bus stops, and

- Improving the aesthetic look of the City of Skopje and quality of the transportation services provided by carriers which is the goal of PPP.

The subject of PPP is financing the reconstruction and equipping of the bus stops in the city network of lines in the city of Skopje, by private partner, who will use space on the urban equipment of the bus stops and terminals planned for advertizing, for a certain period of time for its own name and own account (paragraph 3 from the decision of the Board of JSP from 02.04.2010).

In May 2010 an addition was made to the PPP contract to add 80 electronic information displays (hereafter displays) which will need to be placed in bus stops.

The goals of the study for PPP is to assess if the project:

- Is affordable for JSP, taking in consideration budget allocations for the project and possible financial resources from the private partner,
- Transfers the appropriate risk to the private partner, who is the most appropriate for managing those risks,
- Is bringing appropriate value for money - VfM, i.e. it needs to be determined if the PPP for this project will bring VfM, compared with JPS realizing the project.

Contribution of the project for the citizens of the City of Skopje

Outside of the statutory responsibilities for arranging and organizing public transportation, the following contributions would be realized from this project:

- Reconstruction and standardization of bus stops in the city networks of lines of JSP.
- Creation of technical conditions for implementation of the second phase of the project for automatic tracking of the vehicles of JSP.
- Improving the aesthetic look of the City of Skopje.
- Improving the transportation services in the City of Skopje.
- Improving the quality of life for the citizens of the City of Skopje.

Definition of public service and the output and performance indicators for the project

Public services will relate to the exercise of statutory responsibility for regulating and organizing public transport:

Financing of the reconstruction and equipping of the bus stops in the city network of lines in the City of Skopje can be realized by JSP or by private partner through PPP, which will use space from the urban equipment from the bus stops and terminals designed for advertizing for a certain period of time for its own account and name.

Scope of the project ((how this project will achieve the goals, how JSP will participate, how the private partner will participate, and opportunities for PPP)

JSP should set 329 bus stops in the area of the City of Skopje, at the locations where passengers are carried in the city network of lines for transportation.

Performances of the project are referring to the following:[1)]

- **Commercial revenues**

Space from the urban equipment of the bus stops and displays will be used for commercial advertizing purposes.

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1) Assessment is made according the Study for PPP bus stops prepared by JSP from April 2008.

In the project of PPP, it is expected that the private partner will fully finance the reconstruction, equipment and installation of the bus stops and 80 displays and for that will use space of the urban equipment from the bus stops and terminals designed for advertising.

- **Costs envisaged**
  - Investment costs,
  - Other investment costs,
  - Maintenance,
  - Other (depreciation, insurance, marketing, public duties),
  - Financial costs.

II. SELECTION OF PPP OPTION

The private partner is expected to implement the bus stops and electronic displays. Besides that, the following will be expected:

- Increased efficiency (decreased costs in the project life cycle) because the private partner will be interested in decreasing the expenses during the realization of the project
- This will increase competitiveness for the bidding through a shorter contract with the public partner,
- Faster implementation of the project: having in mind that the installation of the bus stops is the responsibility of the private partner, the same is motivated to finish the works earlier in order to reduce the risks of prolonging the construction work,
- Creating additional revenues: it is expected that the private partner will generate commercial revenues from third parties, because it is increasing the attractiveness of the project. From the private partner it is expected that part of the revenues will be transferred to the public partner JSP,
- Improved management: by transferring the responsibilities for providing public services to the private partner, the public partner is playing the role of regulator and is focused on activities for planning, regulating and controlling, rather than the everyday providing of services.

These expectations are in fact the frame for setting the criteria for choosing the best private partner for this.

Priorities for JSP and models of PPP

Priorities for JSP with this project are:

- Reconstruction and standardization of the bus stops,
- Providing technical conditions for implementation of the second phase for the project for automatic tracking of the vehicles,
- Installation of electronic information displays,
- Improving the aesthetic look of the City of Skopje,
- Generating private capital,
- Transferring risks to the private partner,
- Encouraging innovation in the private sector.

For achieving the goals and priorities JSP has available the following PPP models:

Leasing

Within these agreements, the private partner is generating its own revenues from the infrastructure which is in public ownership, in exchange for fixed payments of installments towards the public partner and responsibilities to work and manage the infrastructure. The leasing contract is different from the management agreement because it transfers the risks to the private partner, and the ability for the private partner to generate profit is connected with the capacity to reduce operating costs for the same amount of services.

The similarity of this contract with the managerial contract is in that the responsibility for capital improvements and expansion of the infrastructure stay the responsibility of the public partner, with that in some cases the lessee can be involved in capital investment or financing in the improvements and enlargement of the infrastructure.

Usually, leasing arrangements are lasting five to ten years and are very suitable for projects in infrastructure which are generating independent revenues. THIS MODEL OF PPP CAN BE SUITABLE BECAUSE HIGHER EFICIENCY FROM THE PRIVATE PARTNER CAN BE EXPECTED, AND THE RISKS ARE TRANSFERRED TO THE PRIVATE PARTNER.

Private Finance Initiative - PFI

Within this model, the private partner is responsible for designing and financing the construction of some infrastructure, and for administrating and maintaining the same infrastructure for the public partner, and the same is used for providing public services, mostly for education, health, social protection etc.

Because the private partner has designed and built the infrastructure project it can easily develop a program for maintenance and estimate the costs for the whole period of the contract, and can therefore also have an effect on decreasing the expenses necessary for maintenance of the infrastructure project.

The public partner pays the private partner an aggregate price for: design, construction and maintenance of the infrastructure facilities, for a pre-determined period of time. The advantage for this long-term way of budgeting, which covers the entire life cycle of the project, is perceived in the fact that a large number of subjects in the public sector are spending more money for maintenance of the infrastructure projects than in developing them.

After the duration of the contract, the ownership of the infrastructure facility is, by rule, transferred to the public partner. From design through operating to the delivery of the ownership of the infrastructure facility the agreement may extend to twenty years and more. THIS MODEL OF PPP IS SUITABLE BECAUSE IT EXPECTS THE PRIVATE PARNTER TO DESIGN AND FINANCE THE PROJECT, BUT PAYMENT FROM JSP TO THE PRIVATE PARTNER IS NOT EXPECTED

Concession

The concession model is one of the most famous and practiced models of PPP, which is characterized by the immediate connection between the private partner (concessionaire) and end users of the services. Although the private partner is "under control" of the public partner, it is the one providing and charging for the services to the end users.

In some cases it is possible for the concessionaire to pay a concession fee to the public partner for the concession rights, and in other cases, depending on the concession project, it is possible for the public partner to pay the concessionaire a fee as a settlement of loss for uncharged revenues from the end users.

In the concession model the risks for providing the public services, by the rule, lie with the concessionaire.

The concession model, especially the concession for construction, most of the time is realized through the so-called agreement for "Design-Build-Finance-Operate-Transfer - DBFOT". For the realization of these types of arrangements, most of the time the private partner is establishing a legal entity for special purpose (special purpose vehicle - SPV) in which share can have different entities from the private sector, and the public partner as well. THIS MODEL OF PPP IT IS NOT POSSIBLE, BECAUSE BY THE LAW, IN CONCESSION AGREEMENT CAN BE ENTERED ONLY BY THE CENTRAL AND/OR LOCAL GOVERNEMT.

Taking into consideration the priorities of JSP, the ownership of the infrastructure, the need for capital investment, the need for risk taking by the private partner and the duration of the contract, two models are appropriate for realization of this project through PPP:

- ● Leasing and
- ● Private Finance Initiative-PFI

In essence this model is looking for the private partner to design and finance the construction of the bus stops and installation of the displays, and to maintain the same for certain commercial revenues for a pre-defined period of time.   After the time of the contract expires, the private partner will transfer the ownership to JSP.

Challenges and threats for the models of PPP for this project

According to the previous discussion, suitable models of PPP for this project are the Leasing and Private Finance Initiative - "Design-Build-Finance-Operate-Transfer - DBFOT"

Leasing

Through this model there is an indirect connection between the private partner and the end users of the public services: the private partner is setting and maintaining the bus stops on behalf and in the interest of the public partner. The risks here are transferred to the private partner, and here it is expected that the private partner will use its ability to generate a profit and at the same time reduce the operational costs for the same amount of services. The ownership of the urban equipment, for the whole period of time, is of JSP.

DBFOT

In DBFOT, the private partner is designing, financing and operating the bus stops without payments by JSP, and at the end of the PPP contract gives the possession and ownership of the bus stops to JSP.

Choosing a model for PPP

PPP model for the project

In this model, before concluding the arrangement the following should be established: indicators for success for the private partner, monitoring guidelines and quality of the reconstruction, and monitoring guidelines and quality of the maintenance in achieving the goals and quality of the public services.[2]

Transaction costs include administration from JSP for monitoring and evaluation, and from the private partner the development of an internal system and reporting for keeping the quality on the agreed level according to the arrangement.

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2) JSP should develop a system of check lists, detailed schemes for maintenance and clear targets. The private and public partner should have quarterly or semi-annual meetings. Also, it should be taken care that the administration of the monitoring and evaluation will not exceed the benefits from these operations.

In the agreed reporting from the private partner and in the meetings between the partners any penalties can be calculated if the quality and goals are not achieved.

The legal formality will be tendering process from JSP for installation and maintenance of bus stops.

Risks: Lack of interest from private partners.

Advantages: JSP doesn't have financial costs. Also, JSP will have lower costs because the design, financing and maintenance are the responsibilities of the private partner.

Weakness: due to lack of experience with PPP, JSP may have higher transactional costs for the procedure.

Leasing

The private partner is responsible for the design, financing, installation and maintenance of the urban equipment.

Through this model JSP must:

- Generate financial resources from the private sector for the installation of the bus stops through a model which is more favorable than the uncertainty of borrowing or issuing bonds,
- Transfer the risks from the reconstruction and quality of the reconstruction and maintenance to the private partner.

Although JSP already has construction calculation for placement of the bus stops, it should ask the private partner to offer alternative solutions/construction calculation if the private partner thinks that will improve the quality and decrease the costs for reconstruction.

The legal status of real estate - the locations of the equipment - remains the property of the city, while the right to use and manage for the period of validity of the contract is moved to the private partner. After the expiration of the contract, management and usage of the equipment and location will be transferred to the JSP without any compensation.

Table 9. Advantages and disadvantages of PPP models

Model	Advantages / disadvantages
Leasing	JSP is the owner of the bus stops for the entire time.
	The private partner is generating commercial revenues. The private partner is taking the risks of the construction work. JSP is not paying the private partner. There is no need for forming a Special Utility Vehicle. Simple agreement.
DBFOT	JSP is the owner of the bus stops
	In this case the private partner cannot include depreciation as an expense because the equipment is owned by JSP during the period of the agreement, so it will not mean lower costs for the private partner, and by that a lower tax base for profit tax.
	More complicated agreement.

Possible option

JSP should go with the tender procedure for design, financing, installation and maintenance of the urban equipment. The private partner may exercise other commercial activity. The period of time could be approximately 10 years.

Although there is already calculation for the placement of the bus stops, there should be room left for the private partner to suggest alternative construction-calculations and design.

Although the City of Skopje already has bus stops, the subject of this agreement is the placing of new bus stops. In that case it is taken that there is no existing infrastructure which will be leased. On the other hand, the arrangement through DBFOT fits more with the nature of the project which asks the private partner to design, finance, install and maintain the new urban equipment. Because of that we suggest PPP the model of DBFOT.

Motivation for the private partner

According to the form, PPP can be contractual PPP or institutional PPP:

- Contractual PPP: the partnership between the public and private sector is based only on contract
- Institutional PPP: the partnership between the public and private sector is based on their participation in mixed legal entity.

The project includes the financing, design, and installation of bus stops and displays, and the management and maintenance of the fixed assets - bus stops and the commercial business opportunities for the private partner. Given the previous discussion for the realization of the project, implementation can be made with a traditional model of public procurement or a PPP model with mobilization of private capital.

III. LEGAL STATUS OF THE REAL ESTATE - BUS STOPS

Legal status of real estate - locations with the equipment remains property of the city, while the right to use and manage it for the period of validity of the contract is transferred to the private partner. After the expiration of the contract, the management and usage of the equipment and location will be transferred to the JSP without any compensation.

Location conditions

Locations of the bus stops are determined with the Report for location of bus stops and urban equipment by streets and direction of installation. Urban equipment includes: bus stop roof, kiosks, benches, trash cans, electronic information displays and other elements. Integral parts of the urban equipment of the bus stops are advertizing billboards.[3]

IV. COST BENEFIT ANALYSIS

Cost benefit analysis is made in accordance with the EU Guidelines: *Guide to Cost-benefit Analysis of Investment Projects for ERDF, Cohesion Fund and ISPA*. The goal is to see if:

1. PPP, through the DBFOT model, is a better option than for the JSP itself to build and operate through borrowing,

Cost benefit analyses is based on the costs and benefits for the defined period of 10 years, which are expressed in monetary units -Euros- and discounted according to weighted average cost of capital (WACC) for Macedonia (see: http://www.cea.org.mk/).

The user in this context is JSP, which is responsible for providing public services for the citizens.

Financial analysis of the project includes the analysis of the direct costs and benefits. Economic analysis of the project includes the indirect costs and benefits.

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3) Now it is being considered not to take into account the kiosk and ticket window as an integral part of the project.

Table 25. Economic assumptions used in the cost-benefit analysis.

Assumptions	Value
Life cycle of the project (approximate valuation)	10 Years
Financial discount rate -FDR[4]	8
Economic discount rate - EDR[5]	8

Financial internal rate of return - FIRR and financial net present value - FNPV, are used to calculate the financial yield. Economic internal rate of return - EIRR and economic net present value - ENPV are used to calculate the economic return. All planned investment costs and costs for operating and maintenance related to the project are used for the calculations. Because calculations are expressed in firm currency (the Euro), inflation is not taken into account.

The life cycle of the project is assumed to be 10 years (2011-2020). One year (2010) is envisaged for the realization of the construction work, tenders procedures, negotiations with the private partner and signing the agreement, and benefits should start in 2011. Indirect taxes (VAT), possible subsidies and transfers are not taken into account.

Appropriate corrections for externalities and risks will not be made because they are very difficult to quantify for this project, and the effects from such possible risks will be analyzed through an analysis of the sensitivity of critical variables.

Costs of investments, costs of operating and maintenance and revenues from the activities if the project is implemented by JSP

Financial analysis

Bearing in mind that JSP is responsible for transporting passengers, in this case there is no income from the public activity. However, JSP may have income from commercial activities as described for the private partner for a possible PPP.

Economic analyses

Indirect benefits could be:

- Increased quality of life for citizens,
- Improved image of JSP.

Indirect costs could be:

- Opportunity cost of usage of the land for another economic purpose.

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4) Weighted average cost of capital (WACC) for Macedonia is estimated at 7.9 so according to the EU Guide to cost benefit analysis for investment we can use (WACC) for a financial discount rate FDR-for Macedonia for this project, i.e. FDR = 8%

5) Economic discontent rate according to the EU guide cost benefit analysis for the EU cohesion countries is 5.5% and is higher by 0.5% points compared to the financial discount rate, and for the other EU countries is 3.5%. From here the economic discount rate-EDR, we will adopt EDR = 8%.

Table 27. Indicators for the project when it is implemented by JSP

| Indicator	Value
FIRR	+45,49%
FNPV	+3,836,960 Euros
EIRR	+59,08%
ENPV	+5,171,601 Euros

From the table we can see that the project is attractive because FIRR (45,49%) is higher from FDR (8%), and it is also attractive from an economic aspect because EIRR (59,08) is higher from EDR (8%).

From here we can conclude that the project is viable when implemented by JSP through borrowing. The problem is that the creditworthiness of JSP is not examined, and JSP cannot allocate funds from its budget for this project.

Sensitivity analysis

Sensitivity analysis is made on the financial analysis, measuring the influence to the FIRR when there is some certain percentage change in the control variables (only one control variable changes while all others remain the same). The control variables are: revenues, investment costs, maintenance costs and interest rate for credit:

Figure 4. Spider diagram of the

sensitivity analysis
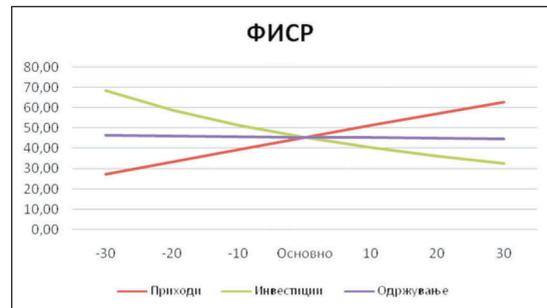
From figure 4, we can conclude that critical variables for the project are the amount of the investments and revenues. Ongoing maintenance is not a critical variable because of the low sensitivity for the worthiness of the project as measured through FIRR.

Switching value[6] for the investments is when they rose by more than 2,6 times, which has a very low probability. Switching value for the commercial revenue is when they will decrease by more than 58%, which also has a very low probability.

Table 28. Sensitivity from the interest rate

Interest rate	10	15	20
FIRR	45.49	41.27	36.94

The project is not sensitive on the conditions for loans, as measured by the interest rate.

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6) Switching value is the value of the variable (in our case the amount of investment) in which the project NPV is zero.

From the values of the IRR, we can conclude that the project is viable and attractive for the private partner. The project is sensitive to the amount of investment and commercial revenues, but not at the required maintenance. The project is unlikely to be non-viable because the investment would need to increase by more than 2.6 times or commercial revenues to decrease by more than 58%, to be on the threshold with FIRR of 8% as a discount rate.

Cost of investments, operating costs and maintenance, and revenue from performing the activity if JSP decides to go with DBFOT PPP model

Financial analysis

Here the total envisaged revenues from the commercial activities are taken into account.

Economic analyses

Indirect benefits could be:

- Attracting private capital,
- Experience of JSP in collaboration with private partners in the area of PPP.

Indirect costs could be:

- Higher transactional costs for negotiations,
- Opportunity cost of usage of the land for another economic purpose.

V. PUBLIC SECTOR COMPARATOR - PSC AND ASSESMENT OF THE VALUE FOR MONEY -VfM

With DBFOT and involvement of the private partner, through motivation for profit, the effectiveness of the project is expected to be increased, and a higher awareness for the market developed. This is assumed through the direct commercial effect from the advertizing. Having in mind all risks which have been analyzed until now, the private partner will do everything to protect its own capital and and to use the capital effectively with adequate yields.

In order to evaluate the expected advantage by the private partner, it should be compared objectively with the situation if those assets were managed by the municipality and thus to see whether there is adequate value-for-money - VfM. This assessment helps the Public Sector Comparator - PSC, which is evaluating the costs (capital, operation and maintenance and overhead) adapted for appropriate risks if the funds are managed by the public sector.

PSC assessment should:

- Be illustrated as a net present value with a proper discount factor,
- Be based on similar projects, if possible,
- Be neutral in terms of financial advantage over ownership of the resources by any partner,
- As much as possible realistically assess the value and risks of the materials (if possible).

Assessment of the value for money - VfM

Calculation of the basic PSC

The basic PSC is calculated from the estimated construction calculation and contains.

Table 30. Costs for JSP, if it implements the project by itself or is implemented through PPP

Implement by JSP	Implemented with PPP
Salary (one employed)	
Maintenance	
Insurance	Salary
Financial costs	(surveillance and monitoring - one person)
Costs for tax	

During the period of 10 years it is obvious that JSP will have a lower cost by using PPP.

Table 30. Calculation for the Value for Money - VfM (NPV for 10 years)

	Calculation	NPV
A	Basic PSC	3,325,742
B	PSC adjusted for the risks	3,325,742
C	PPP	40,260
D	Value for money = B - C	3,285,481

The table shows that the total cumulative discounted costs if the project is implemented only by JSP are (3,325,742) higher from the total cumulative discounted costs if JSP entered in PPP (40,260). From here it turns out that PPP through DBFOT gives a good value for money for this project in the amount of 3,285,481.

Obligations for the public and private partner

Public partner:

- Removes the existing bus stops - "mushrooms"
- Owner of the bus stops, electronic information displays and the land
- Provides map for the locations
- Prescribes standards (through the City of Skopje)
- Provides a program for the installations of the bus stops (through the City of Skopje)
- Determines property-legal relations
- Defines dynamics and order of setting stops and electronic information displays
- Implements a procedure for awarding a contract for public-private partnership

Private partner:

- Rights of usage
- Provides power agreement and connection to the electricity network
- Prepares design solution
- Designs, produces, installs, and maintains bus stops and electronic information displays

- Provides appropriate dynamics for the installation of the bus stops and electronic information displays
- Pays PPP compensation to JSP

Criteria for selecting the best bid and award the contract for PPPs will be:

- The duration of the PPP contract (a private partner / supplier who offers a shorter life of the contract will have an advantage)
- Design of the bus stops
- The period of time for installation of the bus stops
- The PPP compensation that the private partner will pay to JSP

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WHAT DETERMINES UPPER SECONDARY SCHOOL PARTICIPATION? - INTERGENERATIONAL EFFECTS OF EDUCATION OUTCOMES IN ALBANIA

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Abstract

Educational attainment is considered an intergenerational transmission mechanism. The link between schooling of children and their parents could be due to unobserved inherited characteristics, and/or, through the additional household income associated with higher levels of education or parental support. We empirically observe the choice of young Albanians 15 to 18 years old whether or not to enrol in school through a Probit model using cross section data from LSMS 2002. A number of policy issues are addressed. First, we can identify which teenagers are more likely to enter post-compulsory schooling. Second, we can examine to what extent parents' background affect decisions of their children to enter upper secondary education, and what is the role of the schooling system in reducing or magnifying such relationships. Drawing on these findings, our analysis concludes with the development of policy recommendations to target the movement towards higher participation in upper secondary school.

Keywords: schooling participation, socio-economic background.

1. Introduction

In this paper we focus on the determinants of the categorical decision of the upper secondary school age young persons to participate in post-compulsory school or not. Moreover, we concentrate on the variables that determine the strength of the intergenerational transmission mechanism in Albania. It has generally proved difficult to determine whether intergenerational mechanisms works through the inherited genetic factors or environmental factors (Chevalier et al., 2005). The link between schooling of children and their parents could be due to unobserved inherited characteristics, and/or, through the additional household income associated with higher levels of education or parental support. The degree of the association of children's participation in schooling with parental socioeconomic background, referred to as intergenerational

mobility, is determined by the transmission of the socioeconomic status from parent to child. Similarly, it measures the correlation between parent's position in the earnings distribution and that of his or her children (Dearden et al., 1997).

We use the term schooling participation to describe post-compulsory educational decisions including the decision of teenagers to continue their education at the upper secondary level. We observe the choice of young persons 15 to 18 years old whether or not to enrol in school is examined through a Probit model. We use cross section data from LSMS 2002, which contains information on parents and children, and the education and incomes of their parents, as well as other regional variables. A number of policy issues are addressed. First, we can identify which teenagers are more likely to enter post-compulsory schooling. Second, we can examine to what extent parents' background affect decisions of their children to enter upper secondary education, and what is the role of the schooling system in reducing or magnifying such relationships.

This paper is organised as follows. In the next section we provide evidence on the determinants of schooling participation as found in the corresponding literature. Similar empirical studies to ours on Albanian young participation in schooling are critically reviewed in Section 3. Section 4 introduces the methodology applied for estimating schooling participation in Albania and the data to be used. Our empirical findings are reported in Section 5. Concluding remarks are presented in Section 6.

2. Determinants of schooling participation - literature review

An increasing body of the literature has explored the determinants of schooling participation of teenagers, with the main focus on the intergenerational transmission mechanism. While many studies provide evidence for the developed economies, there are still only a few dealing with the transition countries, among which are Pastore (2005) and Hazans et al. (2006). For example, the bulk of the British literature focuses on the participation decision made at the end of compulsory schooling (Pissarides, 1981; Rice, 1987; Micklewright, 1989; Whitfield and Wilson, 1991; Chevalier and Lanot, 2001; Clark, 2002; Chevalier et al., 2005) or analyses the determinants of the highest qualification obtained (Blanden and Gregg, 2004). The US literature deals with participation decisions made at various age (Behrman et al., 1989; Kane, 1994; Cameron and Heckman, 1998; Belzil and Hansen, 1999; Behrman and Rosenzweig, 2002, Haan and Plug, 2006; Oreopulos et al., 2006). Researchers have shown much interest in the role of public education system and the influence of reforms on (reducing or magnifying) intergenerational mobility in general, as in Iyigun (1999) for USA, Baumgartner and Steiner (2006) for Germany, Pekkarinen et al. (2006) for Finland, Checchi and Flabbi (2007) for Germany and Italy. Family capital and parents' decisions are found to affect students' achievement in test scores (math and reading) (Blau, 1999; Parcel and Dufur, 2001), and students performance (Bratti and Stafolani, 2002). Other studies focus on intergenerational transmission persistence, generating a dependent relationship of children's outcomes on parent's outcomes (Dearden et al., 1997, Bjцrklund et al., 2006; Machin, 2006; Blanden et al., 2007). Moreover, several choice decisions between the labour market and schooling participation have been empirically developed in Andrews and Bradley (1997), Davia (2004), Pastore (2005), where the young are allowed to choose between schooling and labour market and other alternatives within these systems. In this section we examine in more depth the effect of different parental background factors and other associated determinants of schooling participation of their children found in the above mentioned studies, and derive our own expectations for the chosen variables in our empirical analysis.

It has been found that factors put forward to explain participation trends fall into two broad categories: (i) those that vary at the individual or micro level, such as family background; (ii) those that vary at an aggregate level such as unemployment. At the microeconomic level, a large empirical literature predicts that family, socioeconomic background and student academic ability have a joint effect on aspirations for further schooling after the compulsory level. The former is assumed to affect tastes and attitudes towards alternative employment opportunities and further education (Rice, 1987) through the intergenerational

transmission mechanism effect. Consequently, two channels of the family background influence are identified. First a direct effect, professional families encourage their children to stay on in education. Second, the indirect ability effect, whereby higher ability children are more likely participate in post-compulsory schooling. Ability in this context is assumed to be transmitted by parents through endowments or a higher investment. We discuss next indicators of socioeconomic background, such as parental education, their occupation, employment status and income, as well as other indicators related to the distribution of family income and parental time dedicated to children.

According to Freeman (1986), perhaps the most important element missing from the basic model of the human capital is the role of the family in education. There is a powerful positive relation between one's family background, measured by family income, occupation or education of parents, and schooling. Youths with more advantaged backgrounds have higher participation rates in post-compulsory schooling than youths with less advantaged backgrounds. Evidence suggests that the determinants found in cross-section and time series analysis of schooling participation relate significantly to a variety of social and economic indicators of family background.

Parental social class and especially parents' professional success in the hierarchic job positions are crucial determinants of schooling participation. Willis and Rosen (1979) for the US, Rice (1987), Andrew and Bradlew (1997), Leslie and Drinkwater (1999) and Thomas and Weber (2005) for the UK for example, use parents' occupation to explain the staying-on school rates of teenagers. These studies generally find higher staying-on rates for children of professional parents, and lower rates for children of manual workers. Similar findings are produced by Micklewright (1989) who introduce the labour market status of parents in the estimations of the 16 year old British staying on at post-compulsory school. According to Micklewright's estimations, a manual background with parents who did not themselves stay on in post-compulsory schooling leads to a predicted probability of leaving school at the age of 16 of 33 percent if a boy and 27 percent if a girl, whilst for those with professional parents who themselves had post-compulsory schooling, the probabilities of leaving are negligible. Moreover, analysing participation of ethnic minorities in the UK (with data from 1991 UK Census), Leslie and Drinkwater (1999) emphasise importance of the socioeconomic factors which do not have an exclusively ethnic dimension.

According to Thomas and Weber (2005), parental class also captures the borrowing constraint effects directly via the relationship between income and the social class grouping. In addition parents' education can have a pure income effect on the demand for children's human capital. Parents' position in the earnings distribution is also determined by their education level. Both parent's education has been found to significantly affect schooling and college attainment of children in the US (Hossler and Stage, 1992; Behrman and Rosenzweig, 2002) and in the UK (Chevalier and Lanot, 2001; Thomas and Weber, 2005). According to Thomas and Weber (2005), parental post-compulsory schooling variables also capture the familiarity of parents with the requirements of post-compulsory schooling education and family tastes. Having invested in further education themselves, parents are more likely to be aware of the benefits and may provide extra encouragement to their children to succeed in education.

Many researchers suggest that effects of the parents are different for children of different gender. For example, Dearden et al. (1997) find, for a British cohort born in March 1958, that father's education is more important for sons' educational decisions, whilst mother's education is more important for daughters. The strong relationship maintains even for the adopted sons, Bj?rklund et al. (2006) find that adopted Swedish children's education and income are as strongly associated with their biological parents' education and income as with their adoptive parents. Father-son mean persistence is relatively large also in developing countries, as in case of Bangladesh (Asadullah, 2006). Other studies claim that the parental child association in education and earnings is stronger between the father and the child. For example, Gang and Zimmerman (2000) find for Germany that there is a statistically significant difference in favour of father's over mother's education. Meanwhile, Haan and Plug (2006) results from a US sample suggest that the mother's schooling has almost no impact on the schooling of her child, holding everything else (including unobserved ability factors of either mother or father) constant. Whilst, Black et al. (2005) find a small but significant

relationship between mother's education and her son's education but no causal relationship between mother's education and daughter's education for Norwegians 20-35 years old in 2000. They suggest that the prevailing correlations between parental and children's education are due primarily to selection, maybe generated by education reforms during the period of parents' schooling, and not to causation. With censored twin samples from US in 1983-1990 and using a correction method, Behrman and Rosenzweig (2002, 2005) find small maternal treatment effects that are very similar to Haan and Plug's. Although these results are in contradiction with widely held wisdom, Bj?rklund et al. (2006) come up with more evidence from the Swedish sample interviewed during 1962-1966, finding that the earnings association between father and child is much stronger than the association between mother and child.

Studies that employ parental educational attainment measures as well as labour market status also control for the effect of family income on decisions of children to participate in schooling. Family income should have a negative effect on the probability of leaving school at the minimum permissible age, working in particular through the discount rates with lower income households being constrained in their choices (Micklewright, 1989). Family income has been found to positively affect enrolment of Pakistani and Nicaraguan 5 to 14 years old children (Rosati and Rossi, 2003). Corak et al. (2004) also find a direct relationship between university attendance and family income for Canadian youths. However, they observe that this relation seems to decrease with an increase in the borrowing possibilities. Chevalier et al. (2005) find out a strong link between earnings of the parents and of the probability of post-compulsory schooling of their children in the UK. Children from poorer backgrounds are generally observed to have lower educational outcomes than other youths (Chevalier and Lanot, 2001). Studying the joint decisions on household membership and human capital accumulation of young Italians, Giannelli and Monfardini (2000) suggest that with imperfect capital markets, parents may loan or grant housing services to their adult children, thus allowing them to more easily engage in post-compulsory schooling.

For a given household income, the household composition determines the financial constraints facing the household when deciding whether or not to invest in the further education of a child. Family size may cause unequal access since parental expenditure per child is inversely associated with family size (Behrman et al., 1989). There is considerable evidence on the effect of siblings on schooling. Hanushek's (1992) empirical investigation confirms the trade-off between the number of children and their scholastic performance, through the direct effect of the family size on children's achievement in school. This may be essentially because parents' time and resources must be spread thinner with more children (Bommier and Lambert, 2004). Accordingly, larger families depress achievement which in turn reduces the incentives for teenagers to participate in further schooling as younger siblings compete for more attention. Other studies analyse birth order effects on schooling participation (Ejrnaes and P?rtner, 2004; Kantarevic and Mechoulan, 2005). The rationale is that older children may enter the labour market earlier due to possible resource constraints in the family, while younger children may be more likely to stay on in further schooling.

At an aggregate level, schooling participation decisions are found to be affected by the labour market conditions, most commonly measured by the local unemployment rate. However, the effect of the latter variable is twofold. As Whitfield and Wilson (1991) suggest, high youth unemployment might be supposed to generate a positive discouraged worker effect, perceived as a decrease in the opportunity costs of attending school. High adult unemployment on the other hand, might induce negative effects on schooling participation through the inability of parents to financially support their child in post-compulsory education, as well as through lower potential returns to education due to the lower probability of receiving a wage. As the former argument implies, the youth unemployment rate has been found to positively affect the 18-year-old age group entering universities for the first time (Pissarides, 1982). Leslie and Drinkwater (1999) estimate a bivariate censored Probit model, where the unemployment likelihood of a young adult (18-24 years old) is observed only if the individual has left full time education. The result is that individuals with a higher probability of unemployment are encouraged to stay on in full-time education. Whitfield and Wilson (1991) find a positive impact of the adult unemployment rate but a non-significant effect of the youth unemployment rate on the proportion of 16 years old individuals remaining in education. Andrew and Bradley (1997) also

find a positive effect of last period's district unemployment rate but a negative impact of current unemployment rate on the British 16 year old decisions to stay on in education. Clark (2002) finds that school-leavers are more likely to participate in further education when unemployment is high. He also finds that youth unemployment has a crucial bearing on participation, particularly for boys in the UK. In a complementary study, Davia's (2004) analysis of European youths suggests that they drop out of education if the immediate benefits from dropping out increase, for example if employment opportunities increase.

In addition to these family background and aggregate factors, peer group effects and school specific factors have also been found to affect schooling participation. For example, Thomas and Weber (2005) found that there was a positive peer group effect for 16 year old British; pupils who mixed with students whose fathers were of same social class or higher were more likely to stay-on school after compulsory. Lalive and Cataneo (2006) argue that individual schooling decisions and peer group schooling decisions may be related in important ways for at least two reasons. First, students may conform to the choices in their peer group because they expect to be popular with them. Second, students and their parents may learn from the choices of other, similar students. For example, Giorgi et al. (2007) investigate the choice of college major of Italian students showing that one is more likely to choose a major when many of her peers make the same choice. Goux and Maurin (2006) identify the causal impact of close neighbours' characteristics on children's outcome of French adolescents. They find that the probability of repeating a grade at the end of junior high-school increases strongly when other adolescents living in the same neighbourhood have already been held back a grade. It is important to note that because education choice is related to family circumstances, and families with similar circumstances tend to live in the same areas, then neglecting school and neighbourhood inputs could lead to systematically overstating the importance of family factors for children's educational attainment (Hanushek, 1992).

As mentioned in the beginning of this section, there is little literature on schooling participation determinants for the transition economies. We can only make reference to two analyses published, to our knowledge, up to now. Pastore (2005) focuses on the determinants of labour market participation of a sample of young (15-30) Poles, controlling for the sample selection bias caused by excluding those in education. He finds that the instrumental variables used in the selection equation (participation in post-compulsory schooling) - the local unemployment rate, expected lifetime earnings and the opportunity cost of education - have a statistically significant impact on the probability of being in education. In contrast with most previous studies in mature market Poles in high unemployment regions, prefer to search for a job, rather than continue studying. Hazans et al. (2006) concentrate on the ethnic and parental effects on schooling outcomes before and during the transition in the Baltic countries. They find a strong positive effect on the propensity to obtain tertiary education of parental education, both in Soviet era and in post-Soviet period. Transition to the market economy has weakened mother's education effect amongst the dominant national group, while the opposite is found to hold true for the national minorities.

In the remainder of this paper we estimate the determinants of the schooling participation of young Albanians in early 2000. We follow the same logic of assessing the role of parental background and regional labour market conditions on these decisions, applied in the above mentioned estimations of limited dependent variables functions. Besides the gender issues discussed above, we add specifications that relate to the urban and rural differences in post-compulsory schooling participation which is generally missing in previous analyses.

3. Schooling participation determinants in Albania - evidence from previous analyses

Prior to discussing our own analysis of the determinants of schooling participation in Albania, we introduce and briefly discuss the existing evidence regarding Albanian youths' schooling decisions. Hazans and Trapeznikova (2006) and Picard and Wolff (2005) make use of the same data source as we do, (LSMS 2002) and the Population Census (2001), and estimate probability functions of post-compulsory schooling participation in Albania. Picard and Wolff (2005) explain schooling participation in Albania in the context of a

developing country framework. Although such an approach may be to some extent relevant given the country's characteristics, we should not ignore Albania's features of a transition economy. Picard and Wolff estimate the probability to have more than 8 years of schooling for a sample varying between ages of 16 and over, with a mean age of 33 years. This choice comprises "children" who have taken decisions on their schooling participation in very different periods (before and after 1990), without taking into account any of the large changes in the education, or the overall political and economic system. Most importantly, a structural break in participation rates at the outset of the emerging market economy at early 1990 is not reflected in their study. The strength of the intergenerational transmission mechanism of human capital may not be the same in egalitarian as in the market economic systems (Grawe and Mulligan, 2002). In this context, there is likely to be inefficient estimates of parental characteristics. Moreover, this structural break should be reinforced by the previous governments' egalitarian approach to income distribution. Another criticism of Picard and Wolff's analysis relates to the religious dummy variables deployed as determinants of post-compulsory participation. Although they find a positive, at 1 percent level of confidence, effect of the Orthodox religion dummy variable, this seems unlikely to be present during the earlier period since religion was outlawed from the early 1960s and therefore those over 30 years old could not express any religious beliefs.

Hazans and Trapeznikova (2006) analysis produces more appropriate estimations of the determinants of schooling participation in Albania. They provide different specifications for urban and rural areas, highlighting the regional disparities in schooling decisions. Gender issues however, are not emphasised. Moreover, they find, other things being equal, urban girls are significantly more likely than boys to participate. Among other independent variables, they use household (HH) characteristics related to the presence of grandparents, and the presence of a HH member who has lived abroad in the previous five years. Whilst the former variables are found not be significant, the latter positively affects schooling participation, at 5 percent level of confidence, only in rural areas. Community characteristics determined by the presence of pre- and upper secondary schools in the community, costs of commuting to school, percentage of teachers with a tertiary qualification and educational attainment of the district (percentage with upper secondary school qualification), and other schooling distance variables are mainly significant for rural areas. Otherwise, Hazans and Trapeznikova find that all the explanatory variables, as we explain below, have the same direction effect on the probability of a 14 to 19 year old Albanian to be enrolled in upper secondary school, being that in urban or rural area.

Given our criticisms of Picard and Wolff's analysis, our empirical approach follows the approach of Hazans and Trapeznikova. However, while we also assess urban-rural differences in schooling participation, we expect that the determinants of post-compulsory schooling may differ across gender groups, and so it is inappropriate to pool male and female data. In contrast to Hazans and Trapeznikova analysis, we also contribute to analysing determinants of tertiary education participation.

Notwithstanding our criticisms of their methodology we next summarise their main common findings to allow a later comparison with those of our own analysis. Their general findings are in line with the theoretical expectations discussed above, in that parental education has a significant positive effect on the probability of an individual pursuing post-compulsory schooling, and there is a negative effect of the number of siblings. Both studies use a series of variables to assess the relationship between the latter and schooling participation of an individual, accounting separately for younger and older brothers, and similarly for the sisters. While the number of younger sisters is significant at 5 percent level of confidence in both studies, the number of brothers, older and younger, is negative at 1 percent level of significance in Picard and Wolff. Further, both studies find that, other things being equal, children in rural areas are less likely to participate in post-compulsory schooling, and the presence of a secondary school in the community increases the likelihood of upper-secondary school participation. Finally, although gender effects in post-compulsory schooling are found to be significant in both studies, assessing higher female participation rates, in Hazans and Trapeznikova this holds true only in the urban areas.

4. Empirical approach and data description

In this section we introduce our empirical approach and the data we use for estimation. As in most similar studies, we apply categorical dependent variable models to estimate the determinants of schooling participation, as explained below.

4.1 Methodology

Following the traditional approach of schooling decisions analysis, in this chapter, our empirical analysis develops binary response models of the form:

$$P(Y = 1 \mid X) = G(X\beta) \equiv p(X) \tag{1}$$

where X is 1 x K, β is K x 1, (K being the number of explanatory variables), and we take the first element of X to be unity. Examples where X does not contain unity are rare in practice (Wooldridge, 2002, pp. 458). We use the index model specified in equation (1) because it restricts the way in which the response probability depends on X: $p(X)$ is a function of X only through the index $X\beta = \beta_1 + \beta_1 x_2 + \cdots + \beta_K x_K$, and the *Xs* represent the vector of different covariates described in detail in Table 1. The function *G* maps the index on to the response probability and it is expressed as follows:

$$G(z) \equiv \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\beta X} e^{-t^2/2} dt \tag{2}$$

where *G* is a cumulative distribution function, which can be derived more generally from an underlying latent variable model:

$$Y^* = X\beta + e, \quad y = 1[Y^* > 0] \tag{3}$$

where e is a continuously distributed variable independent of X and the distribution of e is symmetric about zero (Wooldridge, 2002).

The regressors at our disposal for estimating schooling participation are a mixture of categorical and continuous. There are two broad categories, which relate to level of the individual and aggregation at which they are collected. These are: (i) household and (ii) local area of residence. Table 1 in the Appendices presents the variable definitions, description of the explanatory variables and benchmark categories. We explain in more detail expected effect of each in Section 4.2.

The models that we apply to estimate participation in post-compulsory schooling are of a Probit and Heckman Probit structure, and we explain them below. Different specifications are used for each gender, the rationale for which is as follows. Normally, as found in our literature review above, parental social status has been found to positively affect a child's participation in schooling, whereas family size and siblings' number have a negative effect. Empirical evidence suggests that the direction of these associations is maintained regardless of ethnic origin or area of residence. However, it has been argued that the scale of those effects may vary dependent on the gender of the child. Hence, we are interested in capturing boys and girls differences in determinants of schooling participation, and the specific gender associations of parents with their children. This reflects our previous analysis of the decision to participate in post-compulsory schooling where we commented on the likely impact of Albania's more patriarchal society. In order to capture any differences between urban and rural areas, we utilise a dummy urban variable with the rationale that this variable incorporates the factors identified in Section 4.2.

The Probit model of upper secondary schooling participation

The decision on whether to continue in upper secondary schooling or not at the end of compulsory schooling can be described by a dichotomous model on the 15 to 18 years old sample. For reasons stated in Section 4.1, about the choice of the Logit or Probit model, for the case when the dependent variable takes only two values, either 1 or 0, we apply the Probit model. The Probit model that we estimate is the special case of equation (1) with the index equation as in equation (2) and the unobserved latent variable to be estimated (Y^*) introduced earlier (in equation 3). The probability of a teenager participating in upper

secondary school is equal to 1 if *G(z)>0* (or similarly y_i = 1 if y_i^*>0) and the 0 otherwise (y_i = 0 if y_i^*≤0) conditional on the explanatory variables explained in Section 4.2.

Table 1 Variable definition

Variable	Description	Remarks
Dependent variable:		
Enrolled in upper secondary	Young enrolled currently at upper secondary school	Dummy=1 if enrolled, 0 otherwise
Independent variables:		
Parental social status:		
Mother post-compulsory	Mother has completed post-compulsory schooling (upper secondary and/or tertiary)	Dummy=1 if graduated, 0 else
Father post-compulsory	Father has completed post-compulsory schooling (upper secondary and/or tertiary)	Dummy=1 if graduated, 0 else
Father upper secondary	Father has completed upper secondary schooling	Dummy=1 if graduated, 0 else
Father tertiary	Father has completed tertiary education	Dummy=1 if graduated, 0 else
Father employed	Father Employed (in any economic sector)	Dummy=1 if employed, 0 else
Mother employed	Mother Employed (in any economic sector)	Dummy=1 if employed, 0 else
Family characteristics:		
No. siblings less 14	Number of children 0-14 years old in the household	Continuous
No. siblings less 18	Number of children 0-18 years old in the household	Continuous
Family size	Number of individuals in the household	Continuous
Age15	Teenager of age 15 years old	Dummy=1 if 15, 0 else
Regional characteristics:		
Urban area	Household living in urban area	Dummy=1 if urban, 0 else
Unemployment rate	District aggregate unemployment rate	Continuous

4.2 Descriptive statistics

To carry out the estimations on the determinants of the probability of a young 15 to 18 year old to be enrolled in upper secondary school, data on two generations are required in a single data source. These are education of the individual children and the education and incomes of their parents and other family characteristics are required. LSMS 2002 contains such information and enables us to generate the necessary variables for our empirical investigation. In addition, aggregate data at the district and regional level are deployed to capture effects of the labour market on schooling participation, 'schooling quality' and peer effects.

The LSMS education module has data for each member of the household on the highest grade completed in school and the highest level of diploma obtained. However, we concentrate our analysis of schooling participation only on the school age population. There are a number of reasons for our particular choice. The data base on which we construct our estimations comprises one particular cross-section, namely all young people who reached the end of compulsory (upper secondary) schooling in 2001 and were between 15 and 18 years old in 2002. There are several reasons for making our choice regarding these age group. First, 15 to 18 is the eligible age interval for being registered in upper secondary school. Second, although some may have been registered in upper secondary months before reaching the age of 15 (in the second half of 2001), by the time the survey was conducted they would have reached the age of 15. The third reason relates to technical issues. We could have used even older group ages and control determinants for them to have participated in (and completed) post-compulsory schooling. However, it would be less easy to identify family backgrounds of older cohorts in our dataset of LSMS 2002 for children who are no longer living with their parents. Fourth, theoretically we claim that decisions taken in 2001 (for the school year 2001-2002) would better mirror the intergenerational transmission mechanisms effects in the middle of the transition period.

Using parents' characteristics as determinants of participation in education is made at the cost of losing those students who are living independently either on their own, in partnership with others, or in some other arrangement. However, this problem may be of less concern in our case. Given the country's social

characteristics, young Albanians are more likely to live with parents than apart. Less than 5 percent of the sample lack information on parents, or miss some other information, for those still in compulsory (the 15-18 year old group); we dropped these cases.[7] In the following we explain the variables for estimation reporting their mean value and standard deviation.

Our dependent variable for the both models is drawn from a single question (No. 8/B) of the LSMS 2002 in the fourth module regarding Education:

- Are you enrolled in school in the current school year?

To identify the level of schooling the individual is registered for, we use another question (No. 14/B) asking:

- What level of school are you registered in?

We are not able to distinguish among the 15-18 year old group whether those registered are currently attending school or not. Although there is a corresponding question in the module (9/B), 475 individuals have answered as being currently attending school, and 517 have not answered (or their answer is missing). In survey data individuals often neglect to answer questions. This may happen particularly, if information is already elicited from other similar questions. We check to control by the question (4B/10) asking for the reasons of non attending school regularly. Since answers are missing, presumably all of our sample individuals currently enrolled are attending school and considered as participating. Table 2 reports mean and standard deviations of the variables we utilise in the empirical estimation. About half of the sons and daughters' sample are enrolled in upper secondary schooling.

Table 2 Descriptive statistics of the 15-18 years old sample

Variables	Females		Males	
	Mean	S.D.	Mean	S.D.
Enrolled currently	0.47	0.50	0.48	0.50
Explanatory variables:				
Number of children 0-14 years old	1.28	1.23	1.10	1.17
Father upper secondary	0.35	0.48	0.34	0.47
Father tertiary	0.10	0.29	0.12	0.33
Father post-compulsory	0.44	0.50	0.46	0.50
Mother post-compulsory	0.34	0.47	0.37	0.48
Father employed	0.79	0.41	0.82	0.39
Mother employed	0.62	0.49	0.59	0.49
Unemployment rate in the district	22.78	5.21	23.21	5.21
Urban area	0.45	0.45	0.47	0.45
Age15	0.26	0.44	0.47	0.50
Number of observations	527		465	

Note: We use terms males and females, sons and daughters, and boys and girls interchangeably.

Mother's and the father's education were measured using the same category scale ranging between compulsory or less, and completion of upper secondary or more, though given the low mean of the tertiary education variable for mothers,[8] we only assign three schooling levels to fathers. The labour market status of parents identifies whether the parent has a job, implying that parent is employed in any of the economic sector, including agriculture. We expect these variables of parents' background to positively affect schooling

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7) Missing observations represent less than 1 percent of the sample, hence listwise deletion may apply and cause no selection bias (see Cameron and Trivedi, 2005 for cases when applicable).

8) There were only six mothers with tertiary education for females, and thirteen for males.

participation of their child. Table 2 indicates that sons compare slightly better than daughters regarding their parental background, apart from the labour market status of mothers.

As an additional variable of the parent-child association in schooling decisions we would have applied an income variable. However, the income data is available only for about three-quarters of the sample, and are missing for the other cases because the parents refused to provide the information required. Even when present, there is a major problem with this variable. Income here includes the incomes from all the household members, i.e. even those from school-age children who work are included. Since one possible outcome is that children not in school may be working, the income variable would not be a good proxy. Hence, we are not able to include a parental income measure in our analysis.

We would have expected that the absence of the market for student loans in Albania would strengthen the dependence of education participation on family income. Although the income variable is absent from our analysis, as Hanushek (1992) suggests, the demographic family variables proxy the income share allocated to each child. Hence, the number of younger siblings may negatively affect the probability that a teenager participates in post-compulsory schooling. The larger the family and the number of young children within the family, the smaller the income share to each of the family members. We expect young individuals, especially males, generally to enter the labour force at the end of compulsory schooling if living in poorer families. Table 2 indicates that number of younger siblings is, at the mean, larger for females than males. Being especially interested in the schooling decisions at the age between compulsory and post-compulsory schooling, we employ a dummy variable for 15 year olds, and observe whether their participation is significantly distinct from the other cohorts of 16, 17 and 18 year olds.[9]

Local labour market conditions are proxied by the adult district unemployment rate. Regional differences in employment opportunities may be expected to influence the schooling investment decision, as described earlier, in two ways; either through opportunity costs and/or labour market expectations. At the persisting relatively high unemployment rates prevailing in Albania (Gjipali, 2007), we would expect a negative net discouragement effect on post-compulsory schooling investment, due to the expectation of continuing poor prospects in the labour market. Whether the household lives in an urban or rural area is deemed important in determining the incentives for the young for continuing in further schooling, since we argue that there are more opportunities for employment for graduates in urban areas. The aim is mainly to capture the schooling effects on household decisions. Slightly less than half of each gender sample lives in urban areas.

The analysis developed here, due to data restrictions, lacks some variables related to institutional features: the expected direct cost of education (i.e. tuition fees) and the relative difficulties of accessing the next levels of the education system (entry exams or other screenings procedures). However, tuition fees are only applicable in the tertiary education system and were almost insignificant at the time of the survey. Entry exams to upper secondary schools are limited to entrants into technical schools for which demand exceeds supply (only in 2 to 3 schools in major cities, while our sample is representative of a much broader area, the whole country territory).

While family inputs to education are indeed extremely important, the differential impacts of schools and teachers receive more attention when viewed from a policy viewpoint. The characteristics of the schooling system are generally more easily manipulated than what goes on inside the family. The hypothesised effect of school type variable that we intend to use relates to teacher investment aspects. We referred to teachers' qualification as a measure school quality: the percentage of teachers with only upper secondary or a two-year high school of post-upper secondary in the total number of teachers in each district. If education is of poor quality, the financial incentives to join would be lower. The above measure is provided by the Albanian Ministry of Education at district level. However, maybe due to the low variance of this aggregate variable, we

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9) Being interested also in the drop outs from the post-compulsory schooling, and considering whether participation changes with age, we deploy dummy variables for each age of 15, 16, 17 and 18 (3 dummies plus the benchmark category). However, since none of the dummies corresponding to ages 16, 17 and 18 was significant, we do not report estimations with them. The same applies for participation in tertiary education, regarding dummy variables for ages 19, 20, 21 and 22.

obtained insignificant coefficients and do not report the results with this variable. Instead, given the large differences in school quality between urban and rural areas (Gjipali, 2007), we believe that the urban dummy may also be a proxy for the missing school quality variables, as well as different employment opportunities and peer effects. Next, we present the empirical findings regarding estimations of both models.

5. Our empirical findings

In this section we present our empirical findings on the determinants of schooling participation incidence, meaning the probability that a young adult will be enrolled in post-compulsory schooling. As noted above, a Probit model is used for the 15 to 18 year old decisions, the results of which are reported below.

5.1 Upper secondary schooling determinants

The key concern in this section is what affects the decisions to participate in upper secondary schooling. The estimated coefficients of equation (3) are presented in Table 3. As can be seen, parental education exerts the most significant influence on the post-compulsory schooling participation of Albanian young adults. This association holds for both male and female children at 1 percent level of significance. However, schooling decisions of sons are not significantly affected by the employment status of parents, whereas for daughters, the mother's employment is significant only at 5 percent level of confidence. The number of siblings appears to significantly negatively affect only males participation in upper secondary. It may be that in the presence of a large number of younger brothers and sisters, young male teenagers leave school for work and supply additional income to their family. 15 year olds teenagers are more likely to be enrolled in upper secondary than their older counterparts. This may indicate possible drop-outs from school at a later age.

Table 3 Coefficients of Probit equation estimates of determinants to schooling participation

Explanatory variables	Female		Male	
	Coefficients	S.E.	Coefficients	S.E.
Constant	-0.82**	0.37	-0.49***	0.35
Number of siblings 0-14 years old	-0.03	0.06	-0.21	0.06
Father upper secondary	0.74***	0.16	0.41***	0.16
Father tertiary	2.00***	0.46	1.04***	0.29
Mother post-compulsory	0.58***	0.18	0.54***	0.17
Father employed	0.07	0.18	0.31*	0.18
Mother employed	0.32**	0.16	-0.06	0.15
Unemployment rate	-0.03**	0.01	-0.02	0.01
Urban area	1.36***	0.16	0.68***	0.17
Age15	0.32**	0.16	0.59***	0.17
Log Likelihood	-220.9		-235.04	
Prob > chi2	0		0	
Number of observations	527		465	
Mean dependent variable	0.474		0.484	

*, ** and ***, significant at 10, 5 and 1% of level of significance

The district unemployment rate has a negative impact on the likelihood of female teenagers enrolling in upper secondary school, though for males it is insignificant. It is apparent though, that the urban youth are more likely to attend upper secondary schools than their rural counterparts. We expected this result for several reasons, which are related to the role of the regional variable in capturing school quality and peer effects, as well as the greater work opportunities after completing school. This variable may also capture the

easier access to upper secondary schools that urban area children have compared to those in rural areas. Moreover, rural areas' schools have lower quality than in urban, as measured by the percentage of teachers with tertiary qualification, whilst, poverty in rural areas may lead to school non-attendance, as parents need their children for work at home (OECD, 2002).

The empirical results generated above are indicative of strong intergenerational transmission effects in Albania. Based on the estimated coefficients of the Probit model in Table 4, we produce the probabilities that a 15 year old participates in upper secondary school, at the corresponding family background characteristics as shown in the table, at the mean value of the district unemployment rate and mean number of younger siblings. These probability estimates, for both urban and rural areas residents, are reported in Table 4.

Table 4: Calculated probabilities of schooling participation for a 15 year old in urban area (at the mean values of unemployment rate in the district and number of children 0-14 years old in the family) based on Table 3 coefficient results

Situation	Urban		Rural	
	Female	Male	Female	Male
Parents not employed, less than compulsory	0.55	0.55	0.11	0.29
Parents not employed, PCG, Father upper secondary graduated	0.93	0.86	0.54	0.65
Parents not employed, PCG, Father tertiary graduated	1.00	0.97	0.91	0.85
Parents employed, less than compulsory	0.70	0.65	0.20	0.38
Parents employed, PCG, Father upper secondary graduated	0.97	0.91	0.69	0.74
Parents employed, PCG, Father tertiary graduated	1.00	0.97	0.96	0.90

PCG stands for Post-Compulsory School Graduate

The first two columns demonstrate the case of a juvenile from a household located in the urban area. The first row, for example, represents the case in which the father and mother are not employed and have only completed compulsory education or less, meaning the dummy variables of family background take the value 0. In such a case, the chance of a 15 year old to remaining in education after compulsory schooling is almost a half, if living in a urban area. It is though considerably less likely for rural area children with similar family characteristics, to participate in post-compulsory school. Overall, females in urban areas have higher probability than males to be in school at the age of 15, whereas in rural areas in every category, bar two, they have a lower participation rate. The results suggest that children of parents who are post-compulsory school graduates are much more likely to stay-on after compulsory than their counterparts with lower parental educational attainment. Moreover, estimations indicate that parental educational attainment exerts a stronger effect than their labour market status. For example, if both parents are employed and live in urban areas, the probability that their child participates in upper secondary increases by about 30 percentage points if both parents are post-compulsory (PC) graduates compared to parents who are not (compare rows four and five of the first two columns in Table 4). It is almost certain that if their father has a tertiary qualification, the children will be participating in upper secondary school (although 97 percent chance for sons). If parents are not employed but highly educated, the probability that children are enrolled in upper secondary is smaller if the father has only upper secondary qualification than in case of having a tertiary diploma, by 7 percentage points for females and 10 percentage points for males. Having a father with a university diploma enhances schooling participation opportunities also for teenagers in rural areas. There is a lower participation though, if parents do not have a post-compulsory qualification. Comparing parental background effects by children's gender, it appears that they are stronger for daughters in urban areas, but for sons in the rural areas. Although, if father is tertiary qualified, this increases females' participation into upper secondary school by more.

These findings are generally in line with those found in the previous studies of Picard and Wolff (2005) and Hazans and Trapeznikova (2006). However, we find that the effects of parental education on participation

in upper secondary schooling, are stronger than parental labour market status; the latter was not included in these previous studies. Whilst younger siblings in the family were previously found to negatively affect upper secondary schooling participation in Albania, we find that this is significant only for urban area residents.

6. Concluding remarks

In this paper we are concerned with the demand for education of young Albanians. We were able to empirically appraise family effects on the demand for schooling. The data set that we use allowed us to estimate the effects of determinants related to family and other socioeconomic background. Although we lacked schooling characteristics variables as determinants on schooling demand, using a regional dummy variable allowed us to capture differences of school quality which are mostly pronounced between urban and rural areas.

Our findings suggest that Albanian youths with more advantaged backgrounds participate in post-compulsory schooling at a higher rate than youths with less advantaged backgrounds. Parental education is the most important determinants of schooling participation, suggesting that parents with higher levels of education generally also attach a higher importance to the education of their children. This implies an intergenerational chain transmitting the attitude towards the formation of human capital from one generation to the next. According to Kirchsteiger and Sebald's (2006) theoretical considerations, if the willingness of the parents to finance the human capital formation of their children depends on the investments their parents have made into their education, an economy might exhibit multiple steady states. The economy might get trapped in a low education steady state, where a low education level of the parents leads to the neglect of their children's education, reproducing the low education level in the next generation. As Iyigun (1999) and Kirchsteiger and Sebald (2006) suggest, to overcome such a 'bad' steady state and for intergenerational mobility to increase during the process of development, the share of resources devoted to public education has to be large enough to offset the relative advantage of having parents with academic attainment. More public investment into human capital formation is needed for a transition from a steady state with low human capital levels to one with a higher human capital level, especially when the labour market provides relatively low incentives.

The primary objectives of each policy intervention should be either to alter the system of incentives facing youths and employers in the labour market, or to widen the range of post-compulsory school options, thereby reducing constraints and so offering young people a greater choice. The aim is to raise the quality of the education system and to increase the quantity of education as a means of stimulating Albanian economic and social development.

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THE ASSESSMENT OF THE FINANCIAL SOUNDNESS OF THE BANKING SECTORS IN BALKAN COUNTRIES USING "EARLY WARNING INDICATORS" - A COMPARATIVE STUDY WITH POLICY IMPLICATIONS

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Abstract

This paper uses an early warning model that calculates the Probability of Distress of the banking sectors of seven Western Balkan countries. The application of the model on a country level has revealed that the riskiest country in Western Balkan is Montenegro whereas the healthiest one is Serbia. Albania, Kosovo and Macedonia are characterized by moderate risk levels. We recommend that the efforts of the supervisory authorities in each country should be focused on capitalization in the log run and on the profitability and managerial quality in the short run. The enhancement of the supervisory practices integration beyond the existing Memorandum of Understanding and the creation of a centralized dataset for Balkan banking institutions are recommended.

Keywords: early warning system; banking sector assessment; supervisory framework.
JEL classification: G21, G01

Jean Claude Rochet.

Exactly when and how much should the supervisors be involved with supervising the banking system? Unfortunately this is not a straightforward question and cannot have a straightforward answer. It all depends on the stage of the banking sector development, the timing of the supervision activity and the interrelations that the supervisory, regulatory and other financial stability authorities have established among themselves in a certain financial environment.

The organization and functioning of the banking supervision, as many other areas of banking regulation has recently come under strict scrutiny after its failure to perform during the latest financial crises. How to identify a potentially distressed bank? Which are the pieces of information that could tell if and when a bank is under stress? What is the responsibility of the supervisory authorities when difficulties arise? What are the measures they have to undertake once a bank is ill-diagnosed? Can these measures alone prevent the crises or should they be combined with other measures in the market or macroeconomic dimension before the effects of contagion are not spread beyond the no-turning-back point? While the crisis is certainly still ongoing, the answer to these questions hopefully will not come too late for the supervisory authorities world-wide that are trying to redesign their practices and policies while expecting for guidance from their main international supervisory framework, the New Capital Accord, otherwise known as Basel Accord.

Employing a comparative study this paper attempts to address the issue of banking supervision in the Balkan countries during the financial crisis and the implications for possible enhancements. While these countries are moving toward full implementation of Basel II, being each of them in a different stage of adoption of this framework, the inconsistencies between the supervisory practices among these countries and between them and the supervisory practices of the home countries of their main foreign banks remain a source of potential risk shift and delegation. Assessing the financial soundness of banking sectors in the Balkan countries[10] through the Probability of Distress model presented in the study of Poghosyan and Cihak, (2009) we identify the main sources of risks for each country and propose that the attention and efforts of the supervisory authorities should be directed toward some specific pinpointed indicators. We also use the same model to calculate a probability of distress for the Balkan countries banking sectors in years 2007 and 2008. Based on the results of this comparative analysis, Montenegro seems to be riskiest banking sector while Serbia the healthiest. The same comparative analysis allows us to identify the weakest areas for each of the Balkan countries that logically represent the focal point of respective supervisory attention and efforts. We recommend also that an integrated approach should be undertaken by the supervisory authorities in the Balkan region, so as to ease the impact of the latest crises and to facilitate their integration in the European banking system.

The rest of this paper is organized as follows. In section one a review of the most important predictors that have emerged in the literature of the bank early warning systems is presented. In section two, we give an overview of the banking sectors in the Balkan countries with its most important features and developments. In section three, we present the results of the application of the Probability of Distress model of Poghosyan and Cihak, (2009) in the banking sectors in Balkan countries. In section four we conclude by outlining several policy implications for supervisory authorities in Balkans countries.

1. Literature review on early warning systems.

A lot of studies have been devoted to answer the question: which are the pieces that carry information about the likely future distress of a bank? Focusing usually on published and easily accessible information, the objective of these studies has been to identify which were those indicators that better than any other could distinguish a distressed bank from a sound one.

The potential benefits of establishing a pool of important bank distress predictors with associated thresholds and trigger points are numerous. Use by the supervisory authorities, credit ranking institutions, financial

10) The Balkan countries in the focus of this study are Albania, Bosnia, Croatia, Kosovo, Macedonia, Montenegro and Serbia. We have excluded from the study those Balkan countries that already have become part of the EU.

analysts and general public are just a few. The banking supervision authorities could use them to guide the allocation of limited supervision resources toward those institutions that meet the thresholds levels. In practice there are already a lot of supervisory authorities that have made use of these bank distress predictors (Federal Reserve in US would be an excellent example) and call them by the name "early warning systems". Financial analysts and credit ranking institutions could use them to assess the riskiness associated with each bank. Given the fact that these early warning systems are usually based on publicly available information, the general public could also use them, thus helping in the overseeing and disciplining of the banking market.[11]

In the past literature the main streams of research with regard to early warning systems may be classified into two broad categories: (i) peer group analysis systems utilizing the financial ratios; and (ii) statistical models. The first category focuses on the financial ratios which if exceed or fall below a predetermined critical level entail that the performance of the underlying institution should be carefully examined. Furthermore a peer group analysis is carried out based on financial ratios to assess whether the performance of a certain institution is significantly different from that of its peers. With regard to the second stream of research, there are several statistical models that have been developed which mainly take the following forms: (a) rating estimation models, (b) failure or survival prediction models, and (c) expected loss models. While the first two classes of statistical models require extensive data to be applied, the third class could be applied even in those countries that do not have a rich history in banking institutions failures or that have had sporadic cases of banking failures.

In the existing studies on "early warning systems" three main categories of the indicators that predict the bank distress have emerged:

1. The standard ratios from financial statements which are often known as CAMEL variables (standing for Capital, Assets quality, Management, Earnings, Liquidity). These ratios are mainly used in the early warning systems employed by the supervisory authorities. Among the CAMEL indicators, the profitability, liquidity and solvency variable are helpful in the short-run while the asset quality variables are very important in the long-run (Poghosyan and Cihak, 2009). Sometimes researchers and practitioners even aggregate the CAMEL variables to form certain grading scores, but there is no clear agreement about the basis on which such an aggregation is made, and no consistency can be observed in their use in the literature. This ambiguity over the CAMEL variables application in practice has lead to the usage of other indicators to measure the bank distress.

2. Market variables observed in the capital markets such as stock and debt prices. Assuming efficiency in the financial markets one would not expect the market variables to add any value to the prediction of bank failure beyond that already contained in the CAMEL variables. Research has instead shown that market variables do enhance the predictive ability of the bank distress models, especially in the U.S markets, whereas in the non-US markets there is no clear conclusion about this, (Poghosyan and Cihak, 2009).

3. Measures of bank risk and financial strength such as deposit rates and rating agencies assessments. This third class is relatively rare but concerning the focus of this study it is especially of importance given that a study in Croatia in 2007 (Kraft and Galac, 2007) concluded that the deposit rates are informative concerning the bank failure.

One of the most obvious characteristics of the early warning models presented above is that they are based primarily on statistical quantitative analysis (peer group analysis is mostly used in practice from the supervisory authorities but not so much in academic research). Hence some rationally important qualitative factors in assessing soundness of a banking institution, such as management quality, internal control or bank

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11) There is empirical evidence from the emerging or developing countries that in non-crisis time it is difficult for investors to distinguish between "good" and "bad" firms, bur during a crisis time they can do this, thus enforcing the market discipline tool of third pillar of Basel II. (cited from Jean Charles Rochet, 2008).

governance, fail to be included in these studies, implying low robustness levels for the models they generate.

Another feature of these studies is that most of them being empirical are characterized by dependency from the characteristics of the sample used to develop them and a high amortization rate over time. There is not reached any consensus yet about a commonly agreed set of early warning indicators that would be independent from sample inherent characteristics such as timing, territory, and categories of variables included.

As this is the case, not every model could be used to assess the soundness of the banking sectors in Balkan countries. Instead a model built upon a sample similar with the targeted country/ies in which it will be applied should be employed. The best approximation is the model developed by Poghosyan and Cihak, (2009) to calculate the Probability of Distress using the logistic regression technique. This model was generated based on data from the EU-25 countries for years 1996-2007 and is one of the few models that incorporates quantitative as well as qualitative indicators. Both the timing and the country of origin of observations in this model represent the best proximity for a comparative study of the Balkan countries in years 2007-2008.

2. Overview of banking sectors in the Balkan countries.

One of the most obvious features of the Balkan countries when it comes to the financial sector is the banking institutions prevalence instead of financial markets dominance. This distinctive characteristic is mainly imposed by the economic development stage and by the structure of industrial sectors. As Lin et. al (World Bank WP, 2009) argue there should be a positive relation between the stage of economic development and the complexity of the financial systems; that is the most developed countries would benefit from market-based financial systems whereas the developing countries would fulfill their needs for capital by relying on a bank-based financial system. Thus, being mainly dominated by small and medium enterprises that cannot qualify to be listed in capital markets, the Balkan countries have been concentrated in the development of the banking sector to fuel credit in the economy. Another dimension of the financial system is the size of banks. Berger et, al (2005) argue that the large banks tend to concentrate their activities on large corporations thus structuring the market by a close matching between the bank size and its client size. This explains the non-presence of large universal banks in the Balkan region, where, as previously mentioned, the SME are dominant and crucial to the economic development. It is exactly the proper implementation of the desired banking structure that has allowed the economies in the Balkan countries to grow and develop by providing credit to the companies.

The banking system as it looks today began to be shaped after the 90s when the previously planned economies of the Balkan countries first reformed their financial systems by transforming the mono-level system into a two-level system.[12] Then during late 90s and early 2000s, in what may be called their second stage of reform the Balkan countries began to open to foreign capital entry mainly through massive privatization programs. By the end of 2008, there are 150 banks in the region, with assets totaling 97 billion Euro, which in average represent more than 60 percent of their GDP. The banking sector in the Balkan countries is characterized by a high exposure to foreign capital. For the whole SEE region the foreign banks account for over 70 percent of total SEE bank assets. For the Balkan countries, this figure varies from minimally 73.7 percent in Serbia up to maximally 91.8 percent in Albania. Chart 1 shows the foreign capital exposure of Balkan countries.

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12) Except for countries of the former Yugoslavia that used to have two-level banking system long before the start of the transition.

Chart 1:
Foreign capital exposure of Balkan banking sector as of end 2008.
No data available for Montenegro.
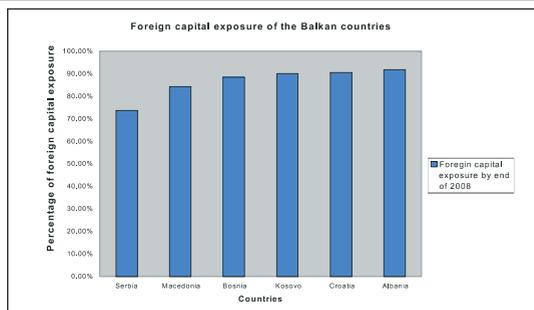
Foreign banks participation in the Balkan banking market has contributed remarkably to the development and growth during the transition period and if it wouldn't be for the latest financial crises none would have possibly considered any drawback of these foreign banks presence in the region. But it was exactly when the news and effects of the financial crises began to emerge that the banking sector in the region also felt the first waves of shock mainly through connections with the multinational banks present in the region. This was lagged in time though because it was only during the last quarter of 2008 that the banking sector in the Balkans began to experience the first symptoms of distress mainly in the form of public confidence decline, large deposit withdrawals and credit restrictions. As concluded in Sorsa, et al, (2009) the dependency upon a few large foreign banks is one of the biggest risks for the Balkan banks.

This phenomenon has a two-way effect. Not only is the Balkan banking system excessively exposed toward the foreign capital and vulnerable to distress in the banking systems of the home countries of its hosted banks,[13] but also a shock or failure in the Balkan banking system would contribute a lot of distress in those big multinational banks that have been exposed a lot in this region. For example according to EBRD estimations, the amount of bad debts in the region may mount up to 10 percent and sometimes 20 percent; only a 10 percent rate of failure of the banking system in eastern and central European countries would lead the entire Austrian financial sector to collapse, given that by the end of 2008 the exposure of Austria toward the CEE countries banking sector was approximately 74.8 percent of its GDP (this comment is made by Der Standard, an Austrian periodic paper). On the other side the Balkan countries have also a high level of dependency upon Austria, like Bosnia and Croatia, where 60% of the foreign capital present in the sector is due to Austria. This two-way exposure represents risks for both home and host countries of the banks. Greece and Italy also have high exposure levels in Balkans.

The supervision of the banking sectors in the Western Balkan countries is performed mainly by the respective Central banks. Such is the case of Albania, Croatia, Kosovo, Macedonia, Montenegro and Serbia. The only exception is Bosnia & Herzegovina where the responsibility for banking supervision is with the Entity Banking Agency of Supervision, an independent body that cooperates closely with the Central Bank of Bosnia & Herzegovina.

All the Balkan countries are currently moving toward full compliancy with Basel II requirements regarding its three pillars, namely the credit risk measurement, supervision regulation and market discipline mechanisms. The majority of these countries are already applying the standard method of calculating the required capital adequacy ratio (pillar one). They are also gradually moving toward adoption of a risk-based regulatory framework, thus abolishing the old rules-based frameworks. Almost all the countries are also expanding their legal frameworks so as to converge their legislation with the European banking legislation. The most common supervision instruments employed by the supervisory authorities are: (1) detailed on site

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13) Sorsa et al, 2009, argue that the regional concentration of foreign banks in the SEE region increases the contagion risks coming by the concentration of a few large banking groups raises the currency risk and increases the likelihood that the foreign banks during periods of shock will decrease lending more in their subsidiaries than in their home countries.

supervision of operations, procedures and IT systems; (2) off-site analysis based on financial statements indicators (basically the CAMEL indicators) as well as on market risk and bank management quality; (3) pre-defined risk matrices (the approach of the Central Bank of Republic of Macedonia) which are used as banks ranking devices after determining the risk exposure level for each of them. As far as we are concerned none of the supervisory authorities in the Balkan countries employ any statistical or other quantitative method to determine the extension of the supervising procedures for specific banking institutions.

In general the banking supervision quality of the emerging European countries (including the Balkans) is considered high (Sirtaine and Skamnelos, 2007). This is probably because of the more stringent rules which are sometimes criticized but that have ultimately paid off exactly during the financial crises.

We observe that even though the banking market in the Balkan countries is a highly integrated and inter-connected one, the supervisory authorities still undertake separate and distinct supervision procedures which are not an effective approach to control for the risks emerging in this sector. A Memorandum of Understanding has been signed by almost all the central banks of the countries in the Balkans since 2007 aiming to overcome the weaknesses from this limited approach to supervision that does not guarantee that risks are correctly assessed especially when concerning foreign banks that are hosting in the Balkan countries. This M.o.U was initiated by Greece, which has a high banking presence in the Balkans.[14]

The M.o.U has promoted a higher level of movement and cooperation between supervision authorities, with bilateral or multilateral meetings, workshops and conferences where the involved parties discuss and exchange information, methodologies and even supervision schedules. Nevertheless this effort, as much being good, does not yield the desired results because it does not enforce or oblige the creation of a centralized center of data which would be available for all the parties involved to draw information from. Maybe a unified and centralized database across the region and an integrative approach to analyze bank at risk at a cross-border level would perform better than a non-binding M.o.U. A similar idea can be that of having a centralized regulator for all EU which could be ECB or any other institution, which would replace the individual national regulators. This would facilitate the regulation and supervision enhancing their quality and on the other hand would help the cross-border banks to have a more efficient capital allocation thus increasing their value.[15]

3. Assessment of financial soundness of the Balkan banking sectors through a Probability of Distress model.

Instead of performing a comparative analysis of the banking sectors in Balkans based on certain unrelated indicators we have chosen to apply a model which combines several CAMEL variables and other ratios into one meaningful score, a Probability of Distress. This model was introduced in the study by Poghosyan and Cihak, in 2009 and represents one of the most comprehensive statistical studies in the field of early warning systems. Applying a unified model to appraise the banking systems in the Balkan countries on top of the methodologies that the supervisory authorities are currently employing in this region is justified at least under two arguments. First, the one methodology extensively used by supervisors to test their respective banking systems, the stress-testing models, have been subject to large criticisms recently; and second, the on-site or off-site supervision procedures employed for different banks at different countries vary substantially and do not offer the desired comparability.

With regard to the first argument: the supervisory authorities in the Balkan countries have more or less all started to apply the stress-testing models either during 2008 or 2009, after the crises breakout. The results generally reported by these stress tests were satisfying being proof of having healthy banking systems in

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14) It is estimated that Greek banks position in the CEE region mounts up to 22 percent of Greek GDP.
15) According to a study by UniCredit Group, 2009, it was exactly the inadequate regulatory oversight one of the contributory factors in the lower market valuation of cross border banking groups during the latest crisis.

place. But we argue that the application of the stress-testing methodology alone is not enough to appraise the stability of the banking institution. These models were especially criticized (Haldane, 2009) at most, because right in the middle of the ongoing crises they failed to capture the full density of problems that the banks in the Western world[16] were undergoing. This is why analysts argue that the current even most-elaborated stress-testing methodologies suffer from being both very precise and very wrong thus violating one of the Keynes' test - which is 'better to be roughly right than precisely wrong'. Hence after 2008, the authorities in the developed countries are trying to revise the stress-testing methods so as they could better identify the ailing banks. The failure of the stress-testing on those big institutions that "invented" them in the first place raises serious concerns about the reliability of their results when applied in the developing countries. The void that stress tests leave behind justifies the use of an early warning model.

Turning upon the second argument the supervision approach and the measures that the supervisory authorities are taking toward the weak banks represent major differences in each different country in the Balkans. While this can be an acceptable treatment for those small banks that operate locally, it is not considered such for the cross-border big banks which are increasingly extending their presence in the Balkans. Under these circumstances, applying the same model to identify banks weaknesses and to initiate corrective measures toward these cross-border banks would contribute to greater comparability and efficiency. This would also prevent the dangerous flows of capital toward the weakest supervisory environments. Currently there is no supervisory authority in Balkans that is using any quantitative technique to identify the distressed institutions, unlike central banks in USA, UK, France or Italy have employed such models for a long time now.

Considering it crucially important to offer an analysis built upon the same foundation that encompasses all the banking sectors in the Balkans regardless their macroeconomic or financial differences, we propose and apply a statistical model which takes into account a vast pool of quantitative as well as qualitative variables. The model will be applied for the aggregate and consolidated data of the banking sector in each individual Balkan country thus trying to measure the financial soundness of each banking sector as a whole. Even though the Poghosyan and Cihak model was initially generated on a bank institution level and in a different region, applying its results in a country level for the Balkan region has at least two grounds:

(i) Almost all the banking systems in Balkans (except Serbia) are characterized by significant asset concentration levels. This means that dominance by some certain banking institutions is observed inside these countries and the aggregate figures of the banking sector are most likely representative of few several big banks that dominate in each respective country. On the other hand, the level of integration inside the banking sector is considerably higher than the level of integration inside all other economic sectors, (mostly due to inter-bank loans), thus justifying the use of consolidated figures in a country banking sector level.

(ii) The model of Poghosyan and Cihak was based on data observed from European Union banks in years 1996-2007, some of which, as mentioned in detail in section two above, have a strong presence and exposure in the Balkan countries (IntesaSanPaolo Bank, Italy; Raifeissen Bank, Austria; Alpha Bank, Greece just to mention a few of them). Except these specific large banks, in general the level of foreign exposure in Balkans is particularly high, mainly toward EU banking groups. This implies that the banks operating in the Balkans region are indirectly included in the model generation itself by being branches or subsidiaries of big multinational European banks thus justifying its application in the Balkans.

Poghosyan and Cihak, (2009) used the logistic regression technique to derive a function which would measure the Probability of Distress of a banking institution. This model was generated based on a unique dataset of distressed and non-distressed banks (in total 5708 banks and 29862 observations) from the EU-25 countries for years 1996-2007. They derived several logit estimation results that confirmed the robustness of the baseline model. Below we are presenting their VII estimation result which includes the indicator of the market concentration.

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16) For instance while Goldman Sacks in U.S was experiencing extreme shocks of its market value back in 2007, the model generated by the stress-testing methodology would regard the actual market conditions as likely to happen only once in 6 x 10124 lives of the universe. Obviously this was happening in reality and it wasn't for one day only but several in a row!

$$\log \frac{PD}{1-PD} = -5.709^{***} - 28.551\ X_1^{**} + 18.950\ X_2^{**} - 0.107\ X_3 - 2.377\ X_4^{***} - 0.246\ X_5 +$$
$$4.649\ X_6^{***} + 5.136\ X_7^{**} + 5.956\ X_8^{***}$$

** and *** in the function above indicate statistical significance at 5 and 1 percent levels, respectively

Where:

PD represents the Probability of Distress dependant upon several variables.

X_1 represents the level of capitalization of a bank measured by the ratio Total Equity / Total Assets. Even though the coefficients in the logit function are not linearly related to the dependant variable, their sign is important to understand the impact of a certain independent variable. The negative sign of the capitalization variable means that capitalization and probability of distress have a negative relation - the higher capitalized banks generally have lower probability of distress.

X_2 represents the quality of bank assets measured by Loan Loss Provisions / Total Loans ratio. This ratio is a proxy for the quality of bank assets and its positive sign means that the higher this ratio is the higher the probability of distress will be. Notice that a high X_2 ratio namely implies non-quality of assets rather than quality, given its form Loan Loss Provision / Total Loans.

X_3 is a proxy for the managerial quality/non-quality which is measured by Total Costs / Total Income ratio with lower values assuming to suggest better managerial quality. Actually it has a negative sign which proves the opposite, but nevertheless this variable, along with the liquidity measure, X_5, were not statistically significant in the model.

X_4 measures bank profitability through Profit before Taxes / Total Equity ratio. Its negative sign implies that the more profitable banks are less likely to experience distress.

X_5 measures bank liquidity through Liquid Assets / Total Assets ratio and having a negative sign it means that the higher the level of a bank's liquidity the less probable it is for this bank to be subject to distress.

X_6 measures market discipline through Interest Expenses / Deposits ratio. The positive sign of this variable is in accordance with other previous studies (Kraft and Galac, 2007), implying that the more a bank raises its deposit rates, thus increasing its interest expenses, the more likely it is that it is experiencing distress. Another way of interpreting this ratio would be that a certain investor would require higher returns for a deposit in a distressed bank compared to a deposit in a non-distressed bank, hence its name "market discipline".

X_7 represents the Herfindahl index measured on banking sector assets. This indicator captures the market concentration level. Based on previous literature findings (Boyd et. al, 2005), a positive relationship is expected between the Herfindahl index and the banking risk, and what is materialized with the positive sign of the coefficient this variable takes in the model.

X_8 is a contagion dummy which is equal to 1 for a bank if there was a failure in another similar bank in its region and 0 if there is no distress in the banking sector as a whole. This variable tries to capture the spillover effects in a market and its positive sign implies that a bank is inclined to experience distress if another bank in its environment has recently failed.

We may notice that the logit function of Poghosyan and Cihak, (2009) model does not include only traditional CAMEL ratios. Insertion of variables that measure the market discipline and spill-over effects has proven valuable because these two (along with the profitability variable) are the most important variables in the model (statistically significant at 1 percent level). Also the inclusion of the Herfindahl index that measures the market concentration is proven to be statistically important at 5 percent level. Poghosyan and Cihak, (2009) report that the inclusion in the model of the Herfindahl index has made the impact of the macroeco-

nomic variables insignificant, thus allowing performing a comparative analysis between the countries despite their macroeconomic differences, which nonetheless are quite minor.

The data used in this analysis is obtained from the official websites of the national and central banks of the respective Western Balkans countries. With a few exceptions these websites provide the consolidated financial statements and other consolidated information of their banking sectors. If otherwise, we have calculated the data by combining information published in the supervisory reports of respective supervisory authorities of each country.

On the first stage of our comparative analysis we focus on the variation of each separate variable among the Balkan banking sectors using as extreme thresholds respectively the average values that this variable takes for the non-distressed European banks group and for the distressed group as reported in Poghosyan and Cihak, (2009). By comparing the performance of the Balkan countries with the average value of each group of European banks we aim to draw the supervisors' attention toward the specific vulnerability that each country represents.

Chart 2:
Comparison of capitalization levels of banking sectors in Balkan countries with those of the European model.

Comparison of capitalization levels of banking sector of Balkan countries with the European model
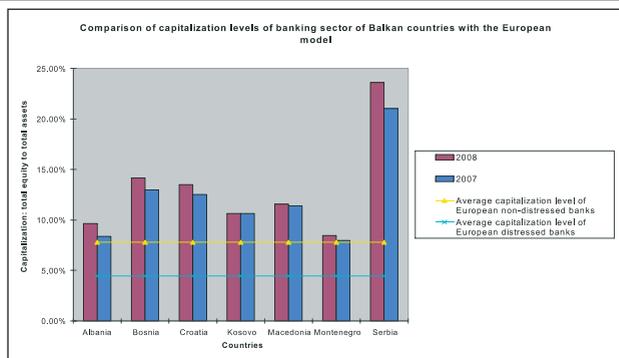
We find that the all the Balkan banking sectors are highly capitalized (chart 2) with all countries above the average value of the European sample where Serbia is the leading country with a value of above 20% while Montenegro slightly surpasses the level of non-distressed European banks but still remains the least capitalized banking sector in Balkan. High level of capitalization in the Balkan countries could be explained by the higher minimum capital levels than those specified in the Basel Accord required by the central banks of each country (most likely to compensate for the poor quality of the internal bank governance). Another point worth to mention is that each country shows an increasing trend of capitalization ratio from 2007 to 2008, reflecting their prompt response to the global crises as a movement toward capital reinforcement.

Chart 3:
Comparison of asset quality of banking sectors in Balkan countries with that of the European distressed and non-distressed banks groups.

Asset quality of banking sectors in Balkan countries and the European model
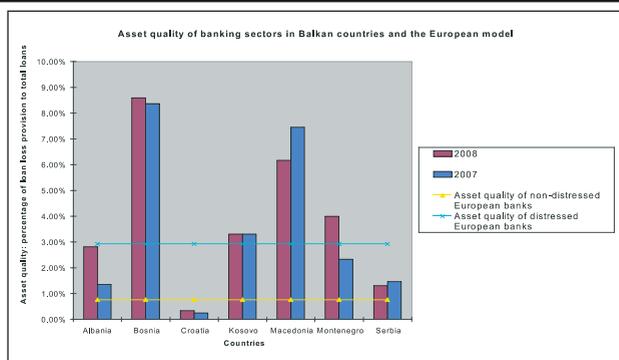
Asset quality is measured by Loan loss provision to Total Loans ratio. The higher it is the less qualitative the banking sector assets are. We may notice in chart 3 that except Macedonia and Serbia, all the other

countries[17] are characterized by an increase in this ratio from 2007 to 2008. The worst performing country with regard to assets quality is Bosnia followed by Macedonia. Their levels of asset quality/non-quality are more than double the average value of distressed European banks. The best performing country is Croatia, followed by Serbia, with satisfying levels, which in case of Croatia is even lower than the average value of non-distressed European banks.

Managerial quality/non-quality variable is characterized by an increasing trend for all the Balkan countries (look chart 4), thus implying that the total costs of all the banks during 2008 were higher in proportion to total income compared to previous year. Only Macedonia and Kosovo maintain for both years a lower level than the average value of non-distressed European banks, showing superior performance, whereas other countries fall somewhere within the range of average values of two groups. The worst performers regarding this variable are Montenegro and Serbia, but as the latter shows a consistency of the ratio in two year-frame, the first one is characterized by a considerable increase of the ratio.

Chart 4:
Comparison of managerial quality of banking sectors in Balkan countries with that of the European distressed and non-distressed banks groups.
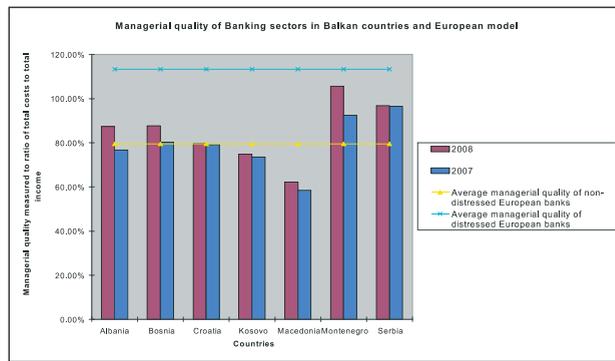
Regarding the profitability of the banking sector (chart 5), all the countries show a decrease in profits, with Montenegro being the only one to have recorded aggregate net losses for 2008. Nevertheless, it remains high enough from the lower threshold, which is the average profitability of distressed European banks. Kosovo seems to be the most profitable banking sector in the region with a level as much as double the non-distressed European banks. Bosnia also seems to be particularly on the verge of breaking even. Recalling that profitability is one of the most important variables in this model, Montenegro, Bosnia and Serbia seem to be especially vulnerable sectors.

Chart 5:
Comparison of profitability of banking sectors in Balkan countries with the average profitability level of the European distressed and non-distressed banks groups.


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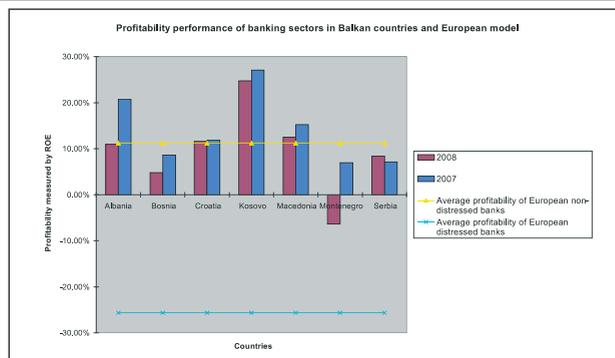
17) We could not obtain data about the Loan loss provision in case of Kosovo, so we used the percentage of non-performing loans to total loans as a proxy for asset quality ratio. This approximate estimation was made to attempt the calculation of Probability of Distress for Kosovo. This should be kept in mind while discussing about the PD of Kosovo banking sector in comparison with the other countries.

Liquidity on the other hand demonstrates a much wider variation among countries exceeding both thresholds of non-distressed and distressed bank in Europe (chart 6). Liquidity levels have decreased for all countries, despite the efforts of the central banks to impose stricter requirements. Albania remains the most liquid country, while Croatia and Montenegro show troublesome low liquidity levels in both years, far below their peer countries and the average value of non-distressed European countries. However, we have to keep in mind that this variable is statistically insignificant in the ultimate Probability of Distress indicator.

Chart 6:
Comparison of liquidity performance of banking sectors in Balkan countries with that of the European distressed and non-distressed banks groups.
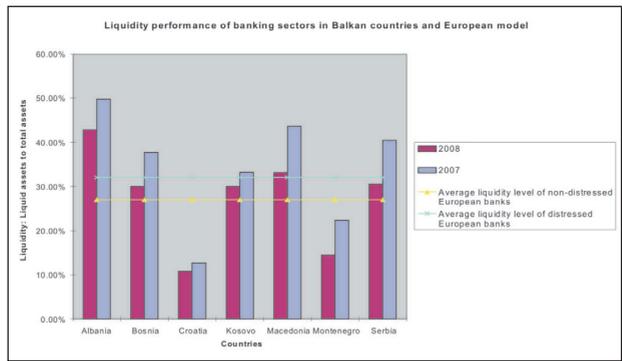
Market discipline (chart 7) represents an indicator where almost all the Balkan countries excel by having most of them lower levels than the non-distressed European banks. Nevertheless, during 2008, this ratio has increased for all countries, except for Bosnia, but still remaining far from the level of non-distressed banks in Europe.

Chart 7:
Comparison of market discipline indicator of banking sectors in Balkan countries with that of the European distressed and non-distressed banks groups.
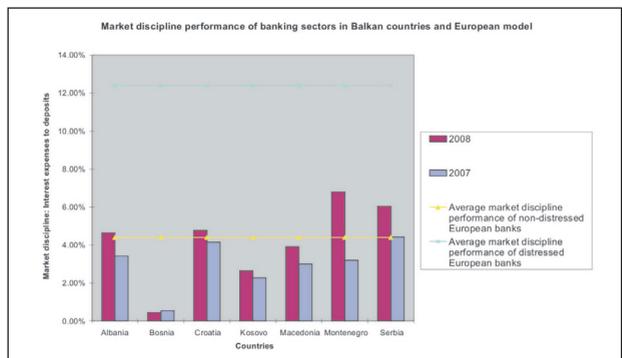
The Herfindahl index (chart 8) that captures information regarding the banking market concentration varies from 0.06 in case of Serbia up to 0.28 in case of Kosovo. The higher this ratio the more risky the banking sector appears. Usually a level between 0.10 to 0.18 is considered to show a moderate level of concentration, with levels below 0.10 considered to show non-concentration, and levels in excess of 0.18 considered to show dangerous high concentration of assets in a certain banking sector. Under the consideration of the Herfindahl index, the riskiest country is Kosovo because it exceeds the acceptable levels while the other countries are positioned inside the moderate-concentration zone. Serbia may be the only country where the banking sector is characterized by complete non-concentration.

Chart 8:

Comparison of Herfindahl index of market concentration among the banking sectors in Balkan countries.
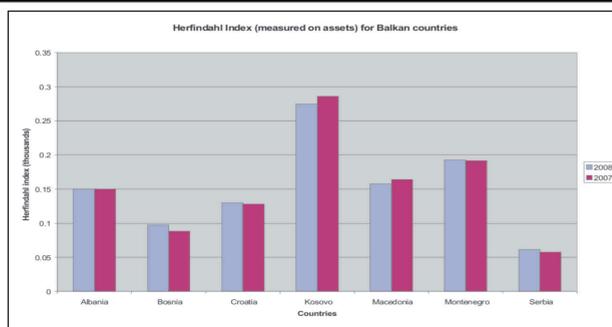
Regarding the contagion dummy, we have applied the model under two different assumptions. The first assumption was to put a value of 1 for Bosnia, Croatia and Montenegro and 0 for the other countries. This distinction among the countries was based in other previous studies that have reported banking crises, namely for Bosnia (Cihak and Schaek, 2007) and for Croatia (Kraft and Galac, 2007), whereas Montenegro has received a value 1 for its contagion dummy due to its current situation in the banking sector where there is at least one bank in bankruptcy proceeding. Even though this certain bank has not declared bankruptcy during the timeframe that we focus in our study for the Balkans (2007-2008), this choice is consistent with the methodology followed in the model of Poghosyan and Cihak, (2009). In the second assessment we assume that none of the countries has experienced distress before or that these failures have not yield their impact in years 2007 or 2008. Thus in the second attempt we try to position each country on a same level before calculating the respective Probabilities of Distress.

Chart 9:

Overview of Probability of Distress for the banking sectors in the Balkan countries. Assumption 1: Bosnia, Croatia and Montenegro are considered to be affected by the crises and are given a value of "1" for the contagion dummy; other countries are given a "0" value.
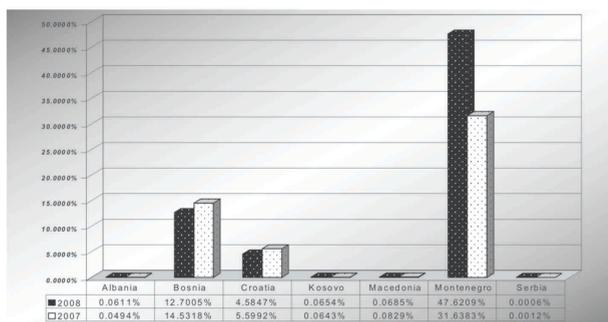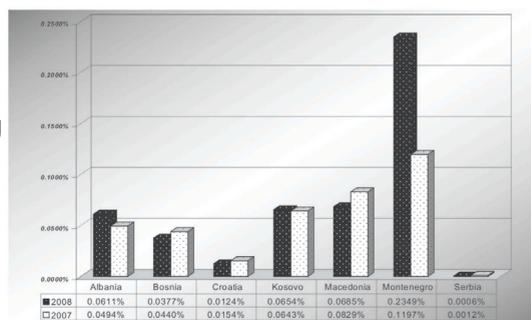

After having compared each Balkan country trend over 2007 and 2008 among them as well as with the two European banking groups we calculate the Probability of Distress indicator under the two different contagion dummy assumptions explained above. For the first assumption (Bosnia, Croatia and Montenegro, under contagion effects from within the banking sector), the results are given in chart 9. Based on the PD value, Montenegro, Bosnia and Croatia appear to be the most vulnerable banking sectors in the region showing as high a value as 48 percent probability of distress (Montenegro in 2008). Serbia emerges as the healthiest banking sector probably due to its superior performance in capitalization level and asset quality.

As we said we recalculate the probability of distress of each country by dropping the assumption of the contagion dummy to check whether Bosnia, Croatia and Montenegro are indeed the most distressed banking sectors in the region or this is instead only the impact of the contagion dummy. Putting all the countries in the same level and not discriminating by the contagion dummy choice that we made, we still find Montenegro (chart 10), to perform persistently worse than its peers, even though with a considerably lower PD of only 23 percent in 2008 compared to 48 percent under the first assumption. One of the differences is that the results of PD for Croatia and Bosnia are much lower than under the first assumption and even better than that of other countries like Albania, Kosovo and Macedonia. Three countries, Macedonia, Kosovo

and Albania, show moderate risk levels. The country with the lowest level of Probability of Distress is Serbia under both assumptions.

Chart 10:
Overview of Probability of Distress for the banking sectors in the Balkan countries. Assumption 2: all the countries are assumed to be not-affected by the crises, thus having all a value of 0 for the contagion dummy.

	Albania	Bosnia	Croatia	Kosovo	Macedonia	Montenegro	Serbia
2008	0.0611%	0.0377%	0.0124%	0.0654%	0.0685%	0.2349%	0.0006%
2007	0.0494%	0.0440%	0.0154%	0.0643%	0.0829%	0.1197%	0.0012%

4. Main findings and the resulting implications for the supervisory bodies.

In this study we have adopted a Probability of Distress model to make a comparative study among the Balkan banking sectors putting them in the context of the average performance of distressed and non-distressed European banks. This model makes use of five different CAMEL ratios, which are mainly drawn from the financial statements as well as of three other variables that try to capture other-than-financial important information such as the market discipline, market concentration and contagion effects. The model is based on the Poghosyan and Cihak, (2009) study and is applied for seven Balkan countries, (Albania, Bosnia, Croatia, Kosovo, Macedonia, Montenegro and Serbia), in years 2007-2008.

We calculate the Probability of Distress under two different assumptions: (1) previous crises in Bosnia, Croatia and Montenegro, and; (2) all the countries assumed free of impact of any previous crises. We consistently find Montenegro, under both assumptions, as the riskiest country in the region, with regard to its banking sector, whereas Serbia emerges as the healthiest banking sector. Albania, Kosovo and Macedonia also show several vulnerabilities in their individual variables of the model that when combined together results in moderately high levels of PD. Bosnia and Croatia show reasonable levels of banking sector soundness only if they are considered not to be effected by their prior crises (as reported in Cihak and Schaek, 2007; and Kraft and Galac, 2007).

In the light of this study there are several implications that arise for roles and actions that the supervisory authorities in respective countries may consider.

First, recalling that not all the variables in the model are equally significant in the PD we propose that the supervisory authorities should redirect their focus toward the most sensible factors. Devoting more attention and supervision resources to such areas as capitalization, deposits interest rates in the long run, and to areas such as profitability, liquidity and managerial quality in the short run is perfectly consistent with the findings of this study. Moreover the supervisory authorities may assign threshold values to each of the variables so as when a bank exceeds a certain minimum or maximum that will represent a trigger point calling for specific pre-defined actions within a carefully structured supervision procedure platform. Average or historic values from the region or from the country may constitute such thresholds values. Consequently, this enhanced regulatory framework based on specific triggers would lead the supervisory authorities toward a systematic revision of the risky banks, and risky areas of certain banks providing a better allocation of supervisory resources.

To elaborate more on the specific risk dimensions of each individual country, we recommend that the supervisory authorities should in this time period focus on:

(i) regarding the CAMEL indicators: (a) monitoring the capitalization ratio levels, which is satisfactory for the Balkan countries in 2007 and 2008, but should be kept under strict follow up; (b) taking actions with

respect to the asset quality ratio, particularly the supervisory authorities of Bosnia, Macedonia and Montenegro, because the average level for the above mentioned countries has far exceeded the average value for the European distressed banks suggesting that there are certain banks representing a very high risk of failure to cover the loan losses with the actual provisions that they are accumulating; (c) the profitability ratio, especially the supervisory authorities in Montenegro and Bosnia, where the value of this ratio is far below the average value of the non-distressed European banks thus implying that certain banks in these sectors are experiencing huge losses that may affect them as well as other banks in the region.

(ii) regarding other variables: (1) deposit rates of the banks especially in Montenegro, Serbia and Albania that have shown tendency to increase these rates from 2007 to 2008 thus reflecting an inside need for attracting liquidity, which in turn may imply for distressed banks; (2) the banking sector concentration level, especially in case of Kosovo but also Montenegro.

Secondly, as the contagion dummy proves to be extremely important in calculating the Probability of Distress of a country (recall that putting all the countries in an equal base, changed almost completely their ranking with respect of PD), even a single bank failure can cause much turmoil in the whole banking sector of a specific country, and across Balkans, given the high level of interconnectedness and exposure that is present. Therefore, the supervisory bodies of Balkan countries should consider undertaking integrated approaches to tackle the risks of the banking systems. Given the high reliance upon the foreign capital, each supervisory authority should assess the main sources of foreign dependency and try to establish common or similar supervisory procedures so as to avoid the delegation of risks from the home country to the host country or vice-versa. A high level of cooperation should also be established among the Balkan countries supervisory bodies themselves. Given the similarities of the overall financial and banking regimes as well as the high level of integration and spread of the banking groups across this region we recommend that a common approach to supervision practices would be beneficial for all the countries, especially for the youngest (Kosovo and Montenegro) that might lack the necessary expertise and experience.

Acknowledging the importance of the common Memorandum of Understanding initiated by Greece and signed by almost all the Balkan countries, we still insist that this only is not enough to guarantee the desired level of cooperation, especially in the light of the common aspiration of the Balkan countries - the EU integration. For this reason we recommend that the Balkan banking supervisory authorities should aim toward a deeper coordinated approach of the banking regulation integration among themselves and with strategic EU countries. This action would be in line with what has been lately proposed for the EU supervisory framework itself in the De Larosiere Report, (2009). Coordinated supervision in the Balkans is also beneficial to the banks because it will allow them to allocate the capital in a more efficient manner.

We also recommend that by creating a unified database for the Balkan banks the supervisory authorities in this region would benefit from using the quantitative and qualitative information to model the behavior of the banks. The availability and usability of this centralized information could also help to identify in due time the ailing banks and to coordinate a common supervisory approach especially in cases where it is a cross-border bank that is experiencing difficulties.

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ANALYSIS OF THE EFFECTS OF THE ECONOMIC CRISIS IN GREECE ON THE MACEDONIAN ECONOMY

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Abstract[18]

The deep economic crisis which currently is "shaking" our neighbour Greece emerged as a new variable in the predictions and planning of the economic activity along with all the main economic variables in the Macedonian economy. In this study we are attempting to determine the potential effects of the Greek economic crises on our economy, having in mind that our neighbour - Greece - is one of the bigger investors and trading partners of our country. The dominant part - the core of the analysis - will focus on determining the effects of the economic crisis in Greece on: foreign effective demand of Macedonia (two scenarios), threatened export sectors and possible options for reducing the effect on those sectors (case study), the effects on the flows of foreign direct investment, the effect of spreading the crisis outside the Greek economy (Euro zone), and other direct and indirect effects connected with the initially mentioned.

Key words: Greek economic crises, foreign effective demand, export, FDI, Macedonian economy

Introduction

The extended economic crisis in our neighbour Greece arouses great doubt, various expectations and debates about the effects that the Greek economic crisis could have on the Macedonian economy. The economic crisis in Greece initiates various statements and opinions from a variety of sources (ministers, analysts, representatives of international organizations - IMF, etc.), which lead public opinion in different directions, but a study that would dedicate special attention to this problem is not prepared yet. This was one of the reasons for preparing this study based on empirical data that would analyze the effects of the Greek crisis, and will break the doubts about this essential issue. The deep economic crisis which currently is "shaking" our neighbour Greece emerged as a new variable in the predictions and planning of the economic activity along with all the main economic variables in the Macedonian economy. In this study we are attempting

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18) The extensive version of this study with comprehensive explanations and analysis is available on: www.cea.org.mk

to determine the potential effects of the Greek economic crises on our economy, having in mind that our neighbour Greece is one of the bigger investors and trading partners of our country. The dominant part - the core of the analysis - will focus on determining the effects of the economic crisis in Greece on: foreign effective demand of Macedonia (two scenarios), threatened export sectors and possible options for reducing the effect on those sectors (case study), the effects on the flows of foreign direct investment, the effect of spreading the crisis outside the Greek economy (Euro zone), and other direct and indirect effects connected with the initially mentioned.

The study is not pretending to go into the analyzing and determining of the size of the crisis, measures for fighting the crisis and economic situation in Greece, - the focus in our study is oriented on the scenario that could affect the Macedonian economy in this turbulent period. Thus, the study should give a realistic overview of the situation (caused by the Greek crisis) that the Macedonian economy could face in the future period, and then present a solid basis for further analysis, debates and considerations that will illuminate one or more aspects of this relevant issue.

Effects on foreign effective demand

The reduction in economic activity of the most important trade partners of Macedonia negatively affected foreign effective demand, which in 2009 noted a historically deep decline of 3.7%. Collapse of the foreign effective demand was mostly expressed in the first half of the year (4.5%), when we notice the strongest effects of global crisis and the main uncertainty regarding recovery of the global economy. Macedonia as a small and open economy can not achieve good growth rates and operate successfully when isolated from its environment (trading partners and foreign investors). Therefore, the various shocks in the environment are essential for our economy because a small and open economy like Macedonia can easily spiral down-wards.

There is a significant dependency and relationship between the rates of GDP growth and foreign effective demand (before the economic crisis, during the crisis and during the recovery period). Therefore the recovery of our major trading partners in mid-2010 will lead to positive GDP and export growth rates. However, economic developments at the moment show that it is still early to take these assumptions without reserve. There is a close link between the movement of the Greek effective demand and the movements of GDP rates in our economy, but it should be noted that Greek effective demand is recovering slower than the growth of the Macedonian economy. This leads to the conclusion that the expected growth in other major trading partners of Macedonia will positively influence the growth rates in the Macedonian economy, despite the prolonged economic crisis in Greece.

The chart below shows that the effective demand by Greece is far below the total foreign effective demand of Macedonia. In the period 2010 - 2011 we can notice a clear difference between

Dependence between Foreign effective demand by Greece and the real GDP of Macedonia (1999 - 2015)

Foreign effective demand by Greece
GDP - Macedonia, constant prices,

the total foreign effective demand and foreign effective demand without Greece. This leads us to conclude that the reduced effective demand of Greece will affect the reduction of the total foreign effective demand. But it should also be added that the effects of reduced effective demand by Greece have a small and less significant effect on total foreign effective demand. The effects on the total effective demand would be more significant if IMF estimates for Greek growth rates (which we used to determine the total foreign effective demand of Macedonia) take into account the current effects of the economic crisis on the Greek economy.
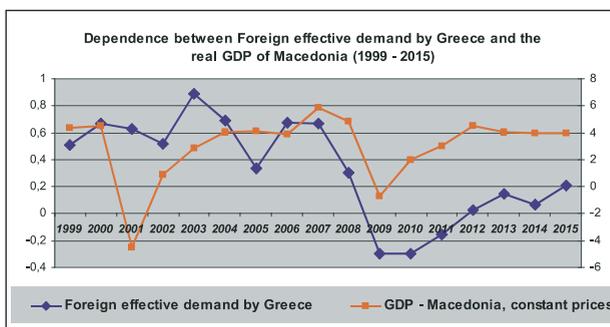
In order to calculate the strong effect from the economic crisis in Greece, we designed two scenarios (2010 - 2014), which present the effects of the global crisis on the Greek economy and the effects on the Macedonian foreign effective demand. The basis for the design of scenarios are IMF estimates for GDP growth in Greece (World Economic Outlook Database April 2010), calculated without taking into account the Greek economic crisis and the income elasticity of Macedonian exports with a value of 1,5.

Foreign effective demand of R. Macedonia (1999 - 2015)
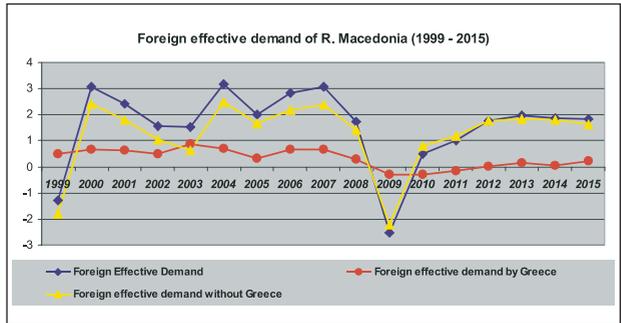
The first scenario predicts reducing the projected GDP rate of Greece by 3 percentage points (each year in the period 2010-2014) at an income elasticity ratio of 1.5.[19]

- The analysis shows that the early effects of this scenario are not so significant, but over time if the Greek economy does not start to recover, the effect will be cumulated, leading to a decline of Macedonian export by: 20.19 million U.S. $ in 2010.; 44.97 million. U.S. $ in 2011; 74.36 million U.S. $ in 2012; 109.50 million U.S. $ in 2013; 152.19 million U.S. $ in 2014 (which is a significant loss).

The second scenario is quite pessimistic and assumes reduction in the GDP projected rate of Greece by 5 percentage points (each year in the period 2010-2014) at the ratio of income elasticity of Macedonian exports - 1.5.

Reduction of the Macedonian export (in miliions US $) reduction of Greek GDP projected rate for 3 p.p. - scenario-

- The analysis shows that the early effects of this scenario on Macedonian export are modest, but over time if the Greek economy does not start to recover, the effect will be cumulated, leading to a decline of Macedonian export by: 30.28 million U.S $ in 2010; 67.33 million U.S. $ in 2011; 111.17 million U.S. $ in 2012; 163.42 million U.S. $ in 2013; 226.75 million U.S. $ in 2014 (an amount which should be seriously considered).
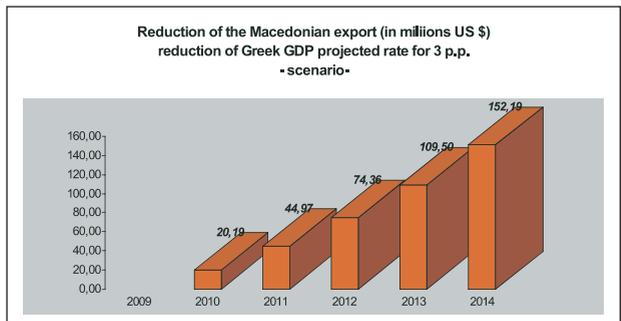
The analysis shows that the reduction of the Macedonian export in Greece according to both scenarios is significant and therefore policy makers should undertake appropriate measures to support the Macedonian companies whose production is marketed in Greece. According to the first scenario we should expect a decline of exports to Greece of 4.94% in 2010; 18.20% in 2012 and a fall in exports for 37.25% in 2014. According to the pessimistic scenario, figures about the decline of Macedonian exports overall are even more negative: a decline of 7.41% in 2010, a decline of almost one third in 2013 and a halving of the exports in 2014 (55.51%).
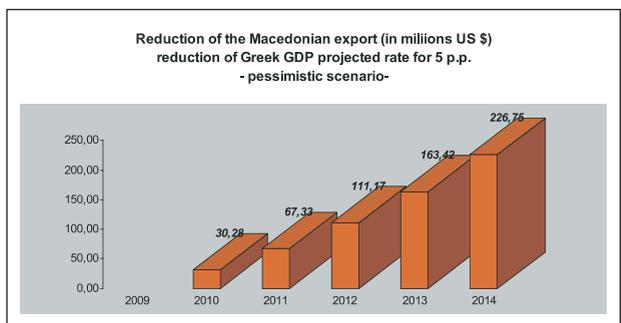
Reduction of the Macedonian export (in miliions US $) reduction of Greek GDP projected rate for 5 p.p. - pessimistic scenario-

19) Income elasticity ratio of Macedonian export

The duration of the economic crisis in Greece is proportional to the size of the effects on the total exports of Macedonia. Under the first scenario (projected decline of Greek GDP for 3 percentage points - which is more realistic), the effects on the decline of the total Macedonian exports are small and less significant (a


Reduction of the Macedonian export according both scenarios (% of total export in Greece)

Reduction of the total Macedonian export according both scenarios (in %)
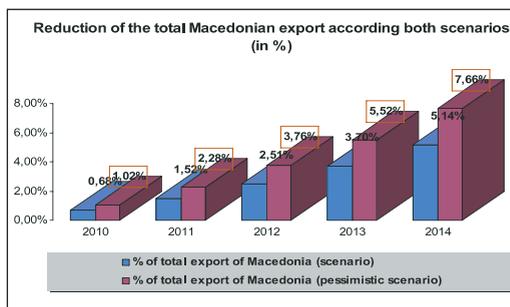
decrease of 0.68% in 2010; 1.52% in 2011; and 2.51% in 2012), but a significant decline of 4% in 2014 and 5% in 2014 - which policy makers in Macedonia should consider and include in their projections. According to the pessimistic scenario (a projected decline in Greek GDP of 5 percentage points), effects on the decline of the total Macedonian exports are: decline of 1.02% in 2010; 2.28% in 2011; 3.76% in 2012, and especially significant is the decline of 5.52% in 2014 and 7.66% in 2014 (which should not cause panic, but should be seriously considered during the creation of the economic policy in the future period.)

The modest effects of the Greek economic crisis on the Macedonian export are results of the estimations (IMF) used in the creation of scenarios which are predicting only decline in the GDP of Greece (negative shock), while the IMF projections of GDP for other economies (which are part of Macedonian effective demand), are moving in the direction of relatively fast recovery and solid GDP growth. Such projections (IMF), assume that growth in other economies will entreat greater import demand, and thus the negative effects of the Greek crisis on the Macedonian export will be absorbed. According to our estimations, the value of lost exports (- first scenario in millions $ - 20.19 in 2010; 44.97 in 2011; 74.36 in 2012; 109.50 in 2013 and 152.19 in 2014; - pessimistic scenario in million $ - 30.28 in 2010; 67.33 in 2011; 111.17 in 2012; 163.42 in 2013 and 226.75 in 2014) are not negligible and should be taken into consideration, but should not cause panic or too much concern (taking into account: the level of foreign reserves - 1606.6 million euros Q.1 in 2010., and coverage of imports with foreign reserves - 4.9 months in 2009.) as a factor which could cause any serious/worrisome pressures on the foreign exchange market and foreign exchange rate. On the other hand the exports' decline would have adequate influence over the domestic - export-oriented production, hence negatively influence other economic variables, such as employment and GDP growth. Thus economic policy makers inevitably need to include this variable (Greek economic crisis) in their scenarios and measures of economic policy planned for future periods (particularly in creating appropriate measures for support of Macedonian companies whose production is marketed in Greece (especially the production of steel, iron and textile products)
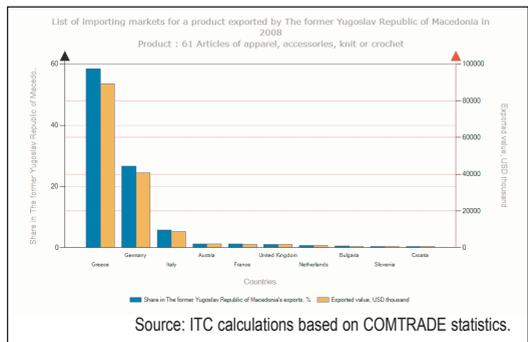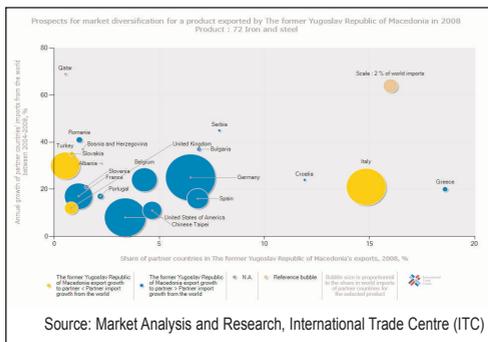
Effects on the major trends in the trade between Macedonia and Greece

Greece is the third largest trading partner of Macedonia and the structure of exported products is quite concentrated. The first five products comprise 50 percent of the total Macedonian exports to the Greek market Considering that the largest market for Macedonia's two strategic export products, iron and steel, as well as textiles, is the Greek market, it is of great importance that institutions and companies jointly seek a way out of the unfavourable situation.
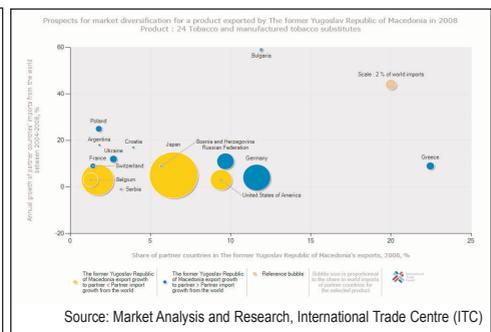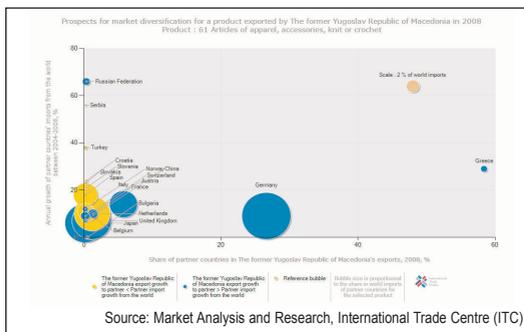
Most critical is the situation with "loan" operations in the textile industry. More attention must also be devoted to exports of products from metal and steel and electrical appliances. Greece is the most important market for these products, and to lessen the consequences of the Greek crisis requires organized support for expansion to new potential markets. This will provide much needed diversification of Macedonian exports.

Source: ITC calculations based on COMTRADE statistics.
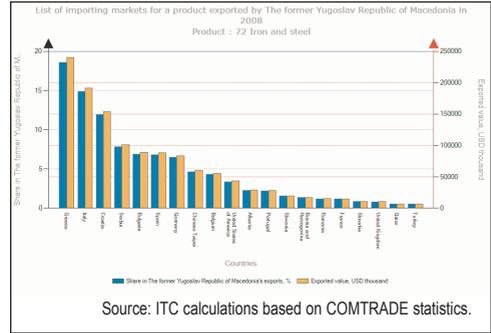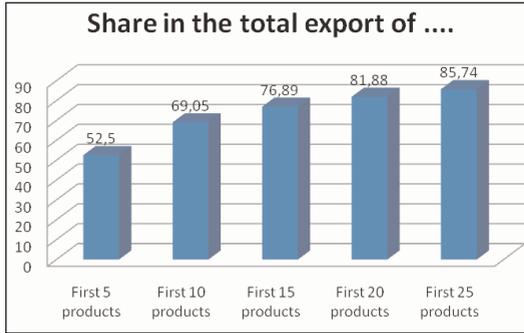
The largest market for Macedonian iron and steel is Greece, participating with 18.59 percent in total exports of these products. To overcome the consequences of the Greek financial crisis and decrease the demand for iron and steel it is necessary to expand to new markets or to increase the share in the existing fast developing markets. Those with the most potential are: Turkey, Italy, Germany, Slovakia and the countries from the Balkans: Serbia, Bulgaria, Bosnia and Herzegovina, Albania and Croatia.

Source: Market Analysis and Research, International Trade Centre (ITC)

Source: ITC calculations based on COMTRADE statistics.

More than half of Macedonian textile products are sold in the Greek market, participating with 58,73 percent in the total export of these kinds of products. Because Macedonian textile manufacturers do not have their own product, expanding to new markets is the biggest challenge for overcoming the consequences from the Greek financial crisis. Macedonia is exporting only cheap labor which has a very small added value. This situation should be used as an additional reason for developing Macedonian final textile products.

Source: Market Analysis and Research, International Trade Centre (ITC)

Source: Market Analysis and Research, International Trade Centre (ITC)

Tobacco is the third most imported Macedonian product to the Greek market. Almost all quantities are exported as a raw tobacco and only a very small part as cigarettes. Almost all export of tobacco is realized by strong global companies such as Imperial Tobacco and Socotab, which in this situation will help in finding new markets for the Macedonian tobacco.

In 2008 Macedonia was placed as a fourth major exporter of articles of iron and steel in the Greek market, with 9,7 percentage share in the total Greeks import. Also, on the national markets of the Balkan countries, Macedonia's export of these products has very positive results. Macedonian companies from this segment are very competitive and with small, well organized support significantly can be increased the export in the Balkan countries and neutralized negative effects of the Greek financial crisis.


Source: Market Analysis and Research, International Trade Centre (ITC)

Source: ITC calculations based on COMTRADE statistics.
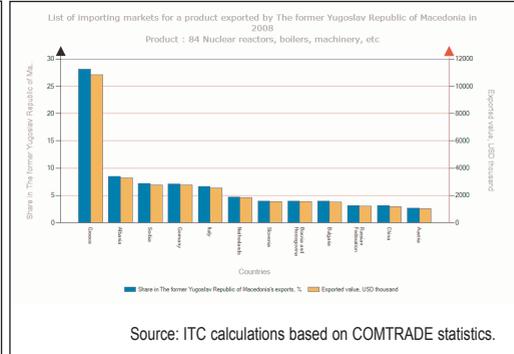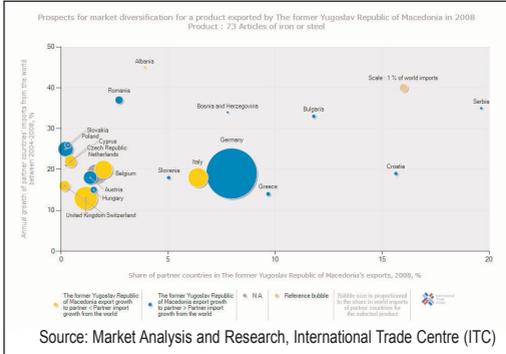
Greece is the biggest importer of electrical appliance (dryer, water heaters, heaters etc) from all countries with share of 28,15 percentage in Macedonian export of this products. Mitigating the effects from the reduction of exports in Greece of these products can be done by increasing the exports in the Balkan countries. This should be easy, because almost in all Balkan countries, Macedonia has seen increased export market share, or more growth in terms of increase in total imports in the same markets.

Source: Market Analysis and Research, International Trade Centre (ITC)
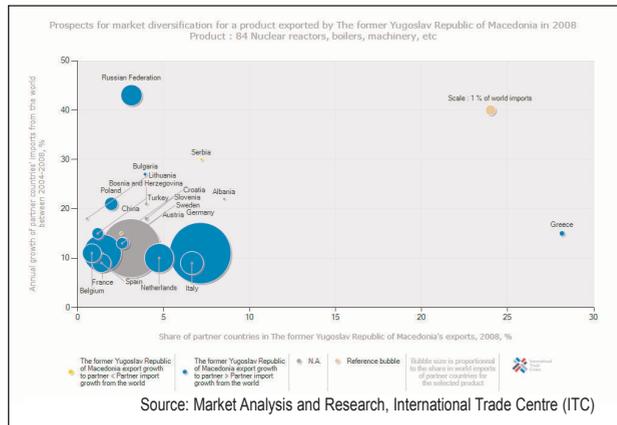
CASE STUDY

The study was made in Bitola as the biggest Macedonian town in the area of the Greek border. There are negative effects in the cross-border trade in the towns which are located close to the Greek border - Bitola, Gevgelija, Strumica etc. The decreasing buying power of the Greek citizens is decreasing the sales of
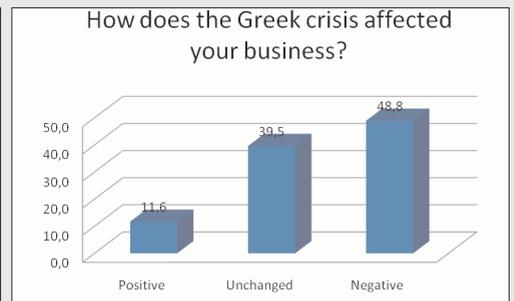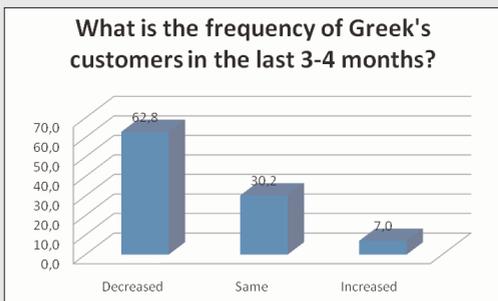
How much money Greek customer is spending on one purchase?
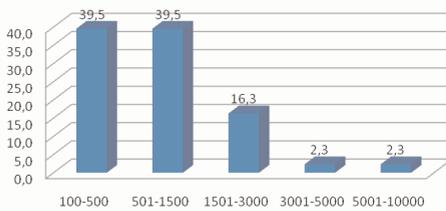

What is the impact on the prices level?
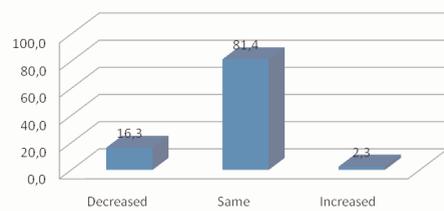
products and services. Restaurants and coffee places from the cross-border places are not having any negative effects, and the only positive effects are seen at gas-stations - because of the lower prices of the gas in Macedonia they had increased sales to the Greek buyers.

A survey in Bitola shows that negative effects from the Greek financial crisis will be experienced by local economies form the cross-border area. Decreasing demand from the Greek customer will

What is the impact on the prices level?

decrease the sales, which will contribute to a decreasing of profits, as a result of which the employment will be decreased which will additionally decrease the demand for products and services. Instate of waiting to see what will happen, there should be efforts made to use this situation as an opportunity. Municipal departments for local economic development, chambers and associations should act for improving the situation. At the least there can be some coordinated promotions, activities, and POPUSTI organized to keep the number of Greeks costumers, and at the same time to attract new customers from Greece. For more concrete measures there must be made further analyses and assessments of the situation.
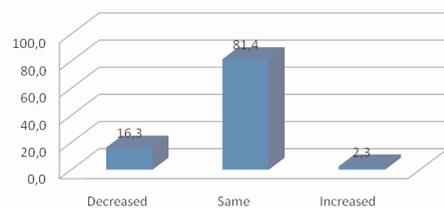
Effects on flows of FDI - Greece /Macedonia

The scenario for FDI flows that we should expect in 2010 and in the upcoming years (which began in 2008 and the trend continues):

- Insignificant inflow of equity capital from Greece, given that a large majority of Greek companies are in poor condition;

- Drastic reduction of reinvested profit (of which the average from 2004-2007 is around 30 million Euro), and consequently an increase in the payment of dividends which will be absorbed by the Greek investors;

- Greek investors will complement the need for additional funds by reducing net inflows on the basis of inter-company borrowing, through higher payments on loans used by parent companies and increased claims based on loans for parent companies;

Structure of FDI from Greece (in millions of eur.)
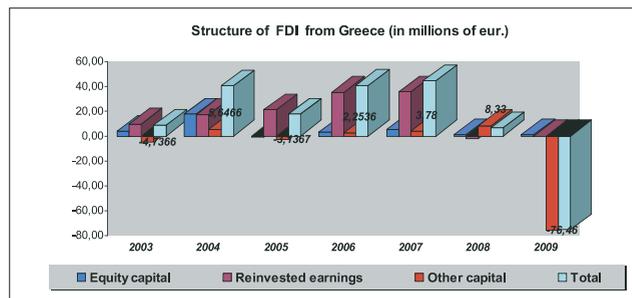
- Any significant withdrawal of major Greek investments in Macedonia should not be expected, because most of the large investments in Macedonian companies are in a monopolistic or oligopolistic position and these companies realize high and consistent profits;

According to our estimations, the outflow of FDI (foreign currency) in the amount of 75.51 million euros in 2009 are not negligible and should be taken into consideration, but are far from significant (compared with the total annual inflow of FDI) as factors that could cause some serious pressures on the foreign exchange market and exchange rate. Speculation may have even more influence in this direction about the effects of the crisis since speculation can strongly influence the expectations of individuals in our economy. Besides the impact on foreign exchange rate, the effects of lower FDI and in particular reducing the share of reinvested profits may have modest effects on modernization, competitiveness and standard of the companies where the Greek capital is dominant. On one hand, many economies in the world are recovering from the economic crisis, which leads to the assumption that in the future through intense economic activity we could expect FDI inflows from a number of other economies that have pulled out of the economic crisis. On the other, the global economy is recovering slowly, and foreign investors are suspicious that that may delay FDI and contribute to the accumulation of the effects caused by the Greek scenario.

Macedonia covers a small part of Greek investments in the banking sector (in the first place are Romania, Turkey and Bulgaria), but if we observe profitability (ROE) of Greek investments in the banking sector in the region, Macedonia is between second and third place (behind Turkey and Bulgaria). Considering that Greek investments in the Macedonian banking sector are among the most profitable compared to the Greek investments in the banking sector in countries in the region, we should not expect a withdrawing or any other way of endangering the stability and efficiency of these banks. The banking sector in Macedonia is well capitalized, the National Bank closely monitors the situation (capital structure and credit exposure), especially in the banks with a dominant Greek capital, thus we should not expect some seriously negative effects on normal operation in this sector. The only factor that may harm not only the banks with dominant Greek capital, but the entire banking sector in Macedonia are negative expectations and lack of confidence, which can endanger even the performance of the most efficient and most stable banks.

Effects on other economies in the Euro zone

(Major trading partners and investors in the Republic of Macedonia)

When we look at the links "credit - debit" (financial connections) of the economies in the euro area, it is not difficult to notice and conclude that major creditors and policy makers in the European Union were without much choice or "between the hammer and the anvil". Financial integration of the economies in the euro area made the countries vulnerable and susceptible to economic crises that can affect one or more countries which are parts of the euro zone. Rapid transmission of negative shocks from the economic crisis in Greece on the other economies (especially on financial markets) and the lack of defence mechanisms were strong arguments to in the short term adopt a plan and coordinate action in order to help the Greek economy to come out of the economic crisis. Despite a plan to rescue the euro / euro area and the taking other safety measures, there is still a serious risk of spill over the economic crisis in Greece to other economies in the euro area -> a risk that should not be neglected and should be taken into consideration during the creation of economic policies and strategies, especially in small, open and export-sensitive economies such as Macedonia.

If such a scenario occurred - the Macedonian economy whose GDP growth is highly determined / dependent on foreign effective demand will be faced with a decline in exports, FDI, and private transfers, which would further lead to pressure on the foreign exchange market, the decline in production, increasing unemployment (which is currently the highest in Europe) and a significant deterioration of the economic situation in our economy. The effects of such a scenario would have the same direction as the effects of the

economic crisis in Greece (effective demand and foreign trade flows, FDI effects and indirect effects on many economic variables such as GDP, unemployment, exchange rate, prices, etc..), but their effects would be far larger and destructive.
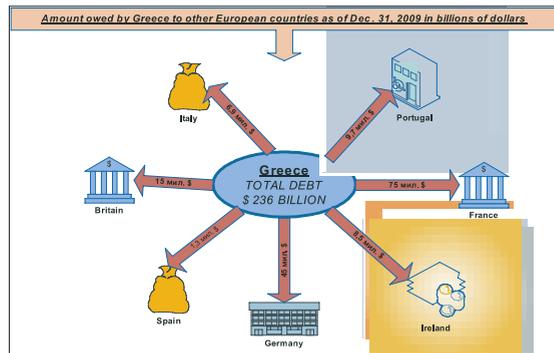
Based on "In and Out of Each Other's European Wallets"od NELSON D. SCHWARTZ, 30 April 2010, The New York Times (Week in Review), http://www.nytimes.com/2010/05/02/weekinreview/02schwartz.html

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COMPARATIVE ANALYSIS OF CREDIT GROWTH AND BANK LENDING CHANNEL AMONG THE SOUTH EASTERN EUROPEAN ECONOMIES DURING THE PERIODS OF ECONOMIC GROWTH AND ECONOMIC RECESSION

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Abstract

The main aims of this analysis are to assess the credit growth and whether the bank lending channel is operational among the economies from South Eastern Europe during the two periods: a) period of relatively stable macroeconomic environment and economic growth: 2004-2008 and b) period of economic recession: 2009Q1 and 2010Q1. In order to investigate these issues, we aim to provide a brief assessment of the key central bank interest rate movements, the major developments on the deposit market as a major source of financing of banks' lending activities and the credit growth. The data presented, indicate that in all almost all SEE economies there have been an episode of "credit boom" during the period of economic growth (2004-2008). An exception from this is Croatia that had two episodes of "credit boom" that occurred much earlier. Regarding the existence of the bank lending channel, the data presented and the results from the correlation coefficient imply that probably in all SEE economies, apart from Croatia, the bank lending channel is not operational.

Key words: monetary policy, credit growth, bank lending channel, Central and South Eastern Europe
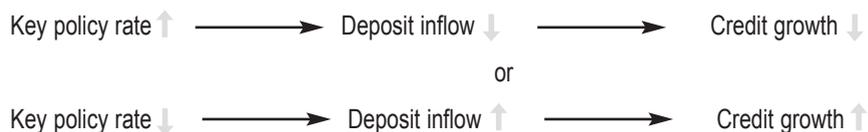
JEL Classification: E4, E5, E52, E58

1. Introduction

Assessing the credit growth and the factors that affect the credit growth from both, the supply and demand side of the loan market is seen to be quite important issues for the monetary policy makers. The credit growth is seen to be an important factor because it may affect the overall economic activity through the credit channel, which is a distinctive part of the monetary transmission mechanism. According to CC-LM

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20) The views and opinions expressed in this article are the authors' own do not necessarily represent the official one(s) of the National Bank of the Republic of Macedonia.

model designed by Bernanke and Blinder (1988), the credit channel is defined as a supplementary enhancement channel of the interest rate channel of the monetary transmission. Hence, changes in the referent policy rate may not affect the economic activity only through the changes in the banks' retail rates (the interest rate channel), but also through the quantity of loan supply by the commercial banks (the bank lending channel). The latter may directly affect the aggregate demand and the overall economic activity through the personal and investment consumption. More specifically, when the monetary policy tightens, e.g. an increase of the referent policy rate, the commercial banks would not only react by the adjustment of lending and deposit rates, but also through the adjustment of quantity of loan supply. According to the CC-LM model this is explained as follows: an increase of the referent policy rate may lead to reduced inflow of deposits that will shrink the sources of financing of banks credit activity. Consequently, the banks will react by reducing the quantity of loan supply. Under these conditions, the loan market equilibrium will be restored not only through the upward adjustment of lending rates, but also through the reduction of the quantity of newly issued loans because in the loan market may still exist some borrowers that are eager to borrow even at the higher lending rate by investing in riskier projects. This type of restoring the loan market equilibrium by reducing the quantity of loan supply by the banks is known as "credit rationing". Ultimately, the credit channel may make the monetary policy more effective. A simplified scheme of how bank lending channel works may be presented as follows:

Key policy rate ↑ ⟶ Deposit inflow ↓ ⟶ Credit growth ↓

or

Key policy rate ↓ ⟶ Deposit inflow ↑ ⟶ Credit growth ↑

Analysing the credit growth and banks' loan supply adjustment to changes in the monetary policy stance may be especially intriguing among the economies from South Eastern Europe (SEE). The rationale for analysing the credit growth in these economies is because the loans, similar as in other transition economies, are the major source of external financing of the private sector. The importance of loans as a major source of financing of the business sector as well as the households among the SEE economies is even greater compared to the more advanced transition economies from Central and Eastern Europe due to the less developed financial markets as an source of external financing. An additional factor that may also increase the relevance of exploring the credit growth in SEE is the so-called excessive credit growth, i.e. the "credit boom" phenomenon, that occurred a bit later compared to the more advanced transition economies of Central and Eastern Europe (Cottarelli et al., 2005). According to the empirical analysis related to the credit growth in transition economies, the "credit boom" periods are implicitly defined when the annual credit growth is higher than 30% (Kraft and Djankov, 2005; Egert et al., 2006; Kiss et al., 2006). As additional indicator for the "credit boom" period may be used the annual rate of growth of the level of financial intermediation defined by the credit-to-GDP ratio. Namely, according to the EBRD Transition Report 2009, the "credit boom" episodes may be defined when the credit-to-GDP ratio exceeds two percentage points on annual basis. Consequently, according to EBRD Transition Report 2009, the periods of excessive credit growth occurred in almost all transition economies in various periods during the process of transformation from centrally-planned to market oriented economy. One of the major reasons for the excessive credit growth in the transition economies is that all of them had a relatively low starting level of financial development and suppressed credit growth that was below the optimal level in the initial period of transition. Accordingly, after the initial stage of the transition process, the activity on the loan market started to develop rapidly in order to achieve higher level of financial development and financial intermediation, a more comparable one to the developed economies from the Western Europe, known as a "catching-up" process.

Hence, the main tasks of this research are to analyze the credit growth among the SEE economies and to investigate, as argued by Cottarelli et al. (2005) and EBRD Transition Report 2009, whether there have been episodes of "credit boom" during the period of stable macroeconomic environment 2004 - 2008. Furthermore, by investigating the key central bank interest rate movements, deposit and credit growth, we aim to explore whether they move in systematic pattern in line with the bank lending channel. Consequently, we would be able to examine whether the bank lending channel has been operational among the SEE economies during both periods, i.e. period of stable macroeconomic environment and economic growth and period of economic recession.

In order to fulfill the aims of this paper, this paper is structured as follows: section 2 assesses the movements of the key policy rates, deposit and credit growth and examines if the bank lending channel has been operational during the period of economic growth. Section 3 investigates the changes in the monetary policy stance during the period of economic recession and hence, the changes in the deposit and loan markets in order to explore if the bank lending channel has been functional during this period. The final section provides the concluding remarks of this research.

2. Assessing the key interest rate movements, deposit and credit growth during the period of "stable" macroeconomic environment

In order to investigate if there is a systematic pattern among the three key variables of the bank lending channel (the key interest rate, deposit and credit growth), during the period of relatively stable macroeconomic environment and economic growth (see figure 1), we start first by analysing the key interest rate movements, followed by the assessment of the major developments on the deposit and loan markets. The reason for dividing the period into two subperiods is for the reason that during the first subperiod (2004 - 2008) there is a relatively high annual growth of the GDP in all SEE economies, whereas during the second subperiod (2009) all SEE economies, apart from Albania, registered negative rates of growth. Even though GDP growth remained positive in Albania, the pace of growth slowed substantially in 2009.

Figure 1:
annual rates of GDP growth at market prices, (in %).

*Preliminary data
Source: EUROSTAT and central bank web-sites
of the respective countries.
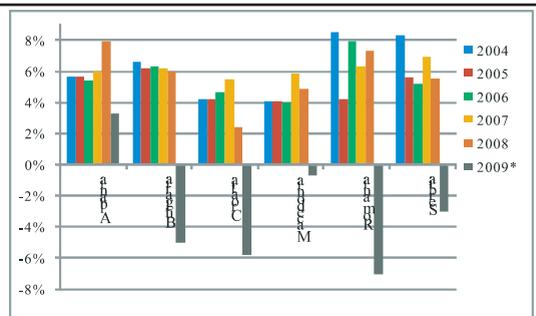
2.1. Key central bank movements

Analysing the key policy rates among the SEE economies, as presented on figure 2, it can be noticed that they have quite divergent movements through time, different starting levels and different variability. For example, regarding the interest rate movements, in general there is a downward trend up to 2008 at the policy rates in Romania, Macedonia and partially Croatia, unlike the interest rates of Albania and Bulgaria which started to increase continually from 2006 till the end of 2008. However, a common feature of the key policy rates of all SEE economies is their upward trend during 2008 when the central banks of all SEE economies started to increase their key policy rates due to the higher inflationary pressure caused mainly by the rise of world's commodities prices (mainly food prices) and energy prices (mainly the crude oil).

Figure 2: key central bank interest rate movements among the SEE economies that have explicit or implicit inflation targeting regime (left figure) and those that have fixed or tight managed floating exchange rate regime (right figure), for the period 2004 - 2009, (in %).
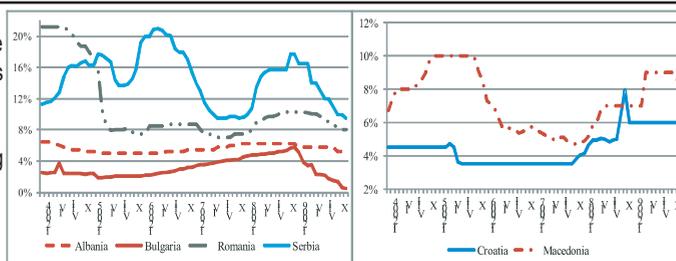
Source: respective central bank web-sites of the respective economies.

Regarding the starting levels of the key policy rates, the lowest starting levels had Bulgaria and Croatia of 2.5% and 4.5%, respectively, whereas the key policy rates of Macedonia and Albania had almost the same starting levels of approximately 6.5%. The highest starting level of around 21% had the reference rate of Romania, which declined sharply during the following period down to 8% in June 2005. A relatively high start-ing level of around 11% also had the key policy rate of Serbia, which has the highest variability among the comparison economies. Nonetheless, this is not surprising having in mind the switch of the monetary policy regime towards inflation targeting in 2006 when there was a gradual fall of the key policy rate. A relatively high variability of the key policy rates can also be noticed in Romania and in Macedonia, whereas the refer-ence rates of Albania, Bulgaria and Croatia have been much more stable.

Overall, it can be summarised that the key policy rates of the economies of SEE, apart from the upward trend in 2008, had a divergent movements. That can be a result of the various monetary policy regimes, spe-cific macroeconomic characteristics and the different degree of development of the financial and banking systems.

2.2. Deposit growth

The deposit growth during the period 2004 - 2008, has been quite different among the SEE economies (see figure 3).. For example, a continual increase of the deposit growth is noticed in Albania, Bulgaria and Macedonia during the period 2004-2007, which declined later on in 2008. In Romania the deposit growth has been changing in contrary direction. Namely, the deposit growth had a downward trend during the whole peri-od of analysis. In Serbia and Croatia, the deposit growth varies differently over the years and no common trend can be noticed. Regarding the size of the annual rates of growth of deposits, they are also different among the analysed economies. For example, the highest rates of deposit growth of approximately 47% can be noticed in Serbia in 2005 and 2007, and in Romania in 2004 of approximately 40%. A bit lower rates of deposit growth of around 30% are registered in Bulgaria in 2006 and 2007 and in Macedonia in 2007. Nonetheless, a relatively sluggish deposit growth can be seen in Albania and Croatia, compared to the peer group of economies. However, one of the reasons for this relatively sluggish deposit growth of Albania and Croatia may be the higher starting level of financial intermediation measured by the deposit-to-GDP ratio, compared to the rest of the SEE economies (see figure 4).

Figure 3:
Annual rates of deposit growth among the
SEE econmies during the period: 2004 - 2009,
(in %).

Source: central bank web-sites of the respective countries.
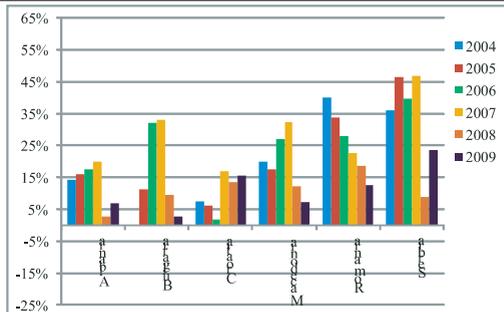
By analysing the deposit-to-GDP ratio as an indicator for the level of financial intermediation, as shown on figure 4, we can notice that in all almost all SEE economies it has been growing continually till 2008. An exception is Croatia whose deposit-to-GDP ratio has declined in 2007 and 2008, probably due to the highest starting level of deposit-to-GDP ratio among the comparison group of economies.

Figure 4:
Deposit-to-GDP ratio among the SEE econmies
during the period: 2004 - 2009, (in %).

Source: author's own calculations upon the data from the central bank web-sites of the respective countries and EUROSTAT.
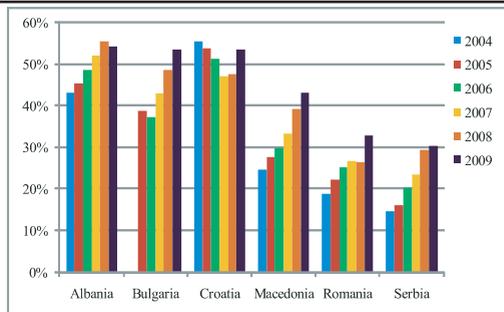
2.3. Credit growth and the level of financial intermediation

The credit growth during the period of stable macroeconomic environment and period of economic growth, at almost all economies from SEE apart from Croatia has been relatively high (figure 5). The annual rates of growth of total outstanding loans to the non-financial private sector have been quite high, i.e. much higher than 30%. If we analyse the credit growth by each country individually, in Albania the highest rate of credit growth of 75% occurred in 2005. According to the Bank of Albania Annual Report (2005) this is explained by the favourable macroeconomic conditions, rapid development of the overall financial system including the loan market, increased competiveness in the banking system and introduction of new loan products by which banks could expand their lending activities. In Bulgaria, the most intensive credit expansion occurred in 2006 when the annual rate of credit growth reached 64%. Similar trends can also be noticed in Romania and Serbia. For instance, the highest rates of credit growth of more than 50% in Romania are noticed in 2006 and 2007, whereas in Serbia the highest rates of credit growth occurred a year earlier in 2005. However, during 2006 the credit growth in Serbia slowed down substantially to a level of 16% mainly due to the shift in the monetary policy regime towards inflation targeting. The shift in the monetary policy regime affected the supply side of the loan market by reducing the confidence of the banking sector in granting loans due to the perceived higher risks of borrowers' default caused by the uncertainty related to the stability of the price level that ultimately might result in worsening of their loan portfolio. On the demand side, the shift of the monetary policy regime increased the uncertainty of the private sector about the stability of the macroeconomic environment and the expected fall in the future income that might result in higher probability of borrowers' default. Consequently, the borrowers refrained from taking new loans.

However, in the following years 2007 - 2008, due to the confidence rebound in the macroeconomic and monetary stability by both the banking sector and the private sector, the credit activity in Serbia intensified again, reaching annual rates of credit growth of more than 30%. Regarding the Republic of Macedonia, a more intensive credit growth activity was noticed a bit later. More precisely, the annual rate of credit growth of more than 30% for the first time was noticed in 2006, reaching the historically highest level of 39% in the following year. Nonetheless, compared to the rest of the SEE, the historically highest rate of credit growth in Macedonia of 39% is much lower, indicating that probably the credit expansion did not intensify with the same pace as it was the case for example, in Albania, Bulgaria and Romania.

Figure 5:
Annual rates of credit growth among the SEE econmies during the period: 2004 - 2009, (in %).

Source: central bank web-sites of the respective countries.
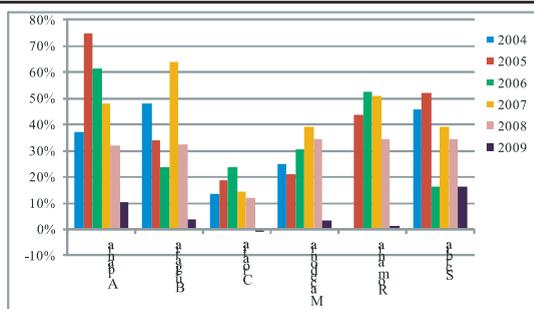
Republic of Croatia may be an exception from the rest of the economies from SEE because the credit growth during the period 2004 - 2008 was much lower. This can be probably explained with the argument that two periods of intensive credit activity occurred earlier than the rest of the economies in the region. For example, the first period of intensive credit activity could be noticed in 1997 and during the first half of 1998 when the annual rates of credit growth were higher that 40%. Nevertheless, this period of intensive credit activity was interrupted by banking crises as a result of the chained banking failure of around 16 banks during the period June 1998 - March 1999 (Kraft and Djankov, 2005). The second episode of intensive credit growth, but with lower pace happened again in 2002 with the annual rates of credit growth higher than 30%. However, during the following years the credit activity slowed down and in the end of 2008, the annual rate of credit growth went down to 12%, which was the lowest one among the countries of comparison.

As additional indicator for the intensive credit activity and the development of the financial intermediation can be taken the credit-to-GDP ratio. As presented in figure 6, at all SEE economies there is a continual increase of the credit-to-GDP ratio, indicating to a higher level of financial intermediation. The highest level of financial intermediation can be noticed in Bulgaria and Croatia where the credit-to-GDP ratio in 2008 reached more than 70% and 60%, respectively. A similar level of financial intermediation can be noticed in Macedonia, Romania and Serbia where the credit-to-GDP ratio is in the range between 40% and 44%. The lowest level of financial intermediation can be noticed in Albania where the credit-to-GDP ratio equals around 37%. This may imply that in future it might be expected a more intensive credit activity in order to reach the level of financial intermediation as the rest of the SEE economies.

Figure 6:
Credit-to-GDP ratio among the economies from SEE, (in %).

* The data for GDP for 2009 is preliminary.
Source: author's own calculations upon the data from the central bank web-sites of the respective economies and EUROSTAT.
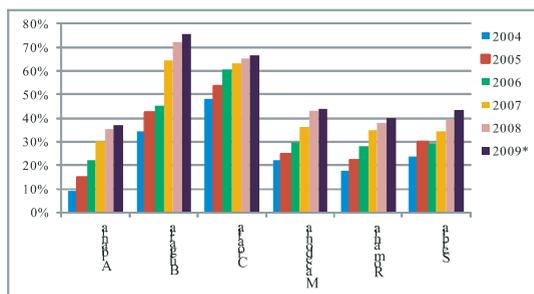
The relatively high credit activity expansion of the banking sector and consequently, the increased level of financial intermediation, can also be analyised by the annual rate of growth of credit-to-GDP ratio. As shown on figure 7, the annual rates of credit-to-GDP ratio during the period 2004 - 2008 in almost all economies from SEE, apart from Serbia in 2006, are higher than two percentage points than can be explained by the intensive credit growth.

Figure 7:

Annual rates of changes of the level of financial intermediation among the SEE economies measured by the credit-to-GDP ratio, (in percentage points).

Source: author's own calculations upon the data from the central bank web-sites of the respective economies and EUROSTAT.
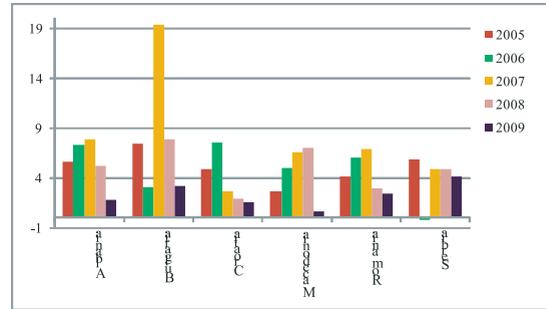
According to the previously presented arguments, it can be summarised that during the period of stable macroeconomic and in period of economic expansion of the SEE economies, it could be noticed an episode of "credit boom". As explained in section 1, this can be inferred by two indicators: a) the relatively high annual rates of credit growth that in almost all SEE economies, except from Croatia, were much higher than 30% and b) the annual rates of growth of credit-to-GDP ratio that during the period 2004 - 2008 were higher than two percentage points. These two indicators may imply to both, an intensive credit activity and higher level of financial intermediation.

2.4. Is there a systematic movement among the key interest rates, banks' deposits and loans that is in line with the bank lending channel during the period of stable macroeconomic environment?

By assessing the movements of the key policy rates, deposit and credit growth in the previous subsections, we should be able to draw a rough conclusion whether the bank lending channel is operational among SEE economies. The testable hypothesis should be the ones presented with the simplified scheme in section 1. As a first method of analysis may be a simple visual inspection of the data presented.

The first chain of the bank lending channel implies to a negative relationship between the key policy rate and deposit growth (inflow). The data regarding this link among the SEE do not indicate to a straightforward conclusion. For instance, in Albania the key policy rate has been declining during 2004 and 2005 and it was increased again later on in 2007 and 2008, whereas the deposit growth has been growing continually up to 2008. Similarly in Bulgaria, the key policy rate started to rise continually from 2005 up to the end of 2008, whereas deposit growth has also been increasing continually up to 2007. Thus, these movements between the key policy rate and deposit growth in Albania and Bulgaria indicate to a positive relationship among each other and are contrary to the predictions of the bank lending channel theory. Moreover, the positive association between the deposit inflow and changes in the key policy rate may be even more obvious in the case of Romania. For instance, the key policy rate fell down sharply in 2005 and again in 2007 whereas the deposit growth has been declining during the whole period of analysis, instead of reverse relationship. A more synchronised and negative association between the key policy rate and deposit growth that is in line with the bank lending channel theory, can be noticed in Macedonia, Serbia and Croatia. The data indicate that when the policy rate has been declining, the deposit growth has been intensifying and vice versa. An example for this may be the case of Macedonia when the key policy rate has increased in 2005, the deposit

growth declined within the same year, whereas during 2006 and 2007 the key policy rate declined and the deposit inflow intensified.

The second chain of the bank lending channel is the connection between the deposit flow and credit growth, which should lead to a positive association between the two. The visual inspection of the data again indicates to an ambiguous conclusion. For example, in Albania and Bulgaria the deposit growth has been intensifying during 2004 - 2007, whereas the credit growth has been declining. This is contrary to the predictions of the bank lending channel theory. In Croatia and Romania it cannot be given any straightforward conclusion because in some years the credit growth has been in line with the deposit growth according to the bank lending channel theory, whereas in other periods this relationship has been reversed. Nonetheless, in Serbia and Macedonia it seems that the credit growth goes in consistent manner with the deposit growth, which might be in line with the bank lending channel.

As a second method of investigation of whether there is any systematic pattern of movement between the key policy rates, deposit and credit growth and whether it is in line with the bank lending channel theory, is to conduct a simple correlation analysis. The correlation coefficients presented in table 1 indicate that in all SEE economies there is a negative correlation between the key policy rates and deposit growth and a positive one between the deposit and credit growth. These results seem to be in line with the bank lending channel theory. However, the correlation coefficients are only statistically significant in the case of Croatia, which may imply that probably the bank lending channel is not operational in the rest of the SEE economies during the period of stable macroeconomic environment and economic growth. Nonetheless, these results should be taken with caution due to the relatively short time span.

Table 1: correlation coefficients between the key policy rates and deposit growth and deposit growth and credit growth for the SEE economies during the period 2004 - 2008.

For the period 2004 - 2008						
	Albania	Bulgaria	Croatia	Macedonia	Romania	Serbia
Correlation between the key policy rate and deposit growth	-0.34	-0.04	-0.82*	-0.63	-0.65	-0.38
Correlation between deposit and credit growth	0.60	0.38	0.91**	0.45	0.41	0.22
*** / ** / * denotes significance at 1%, 5% and 10% level of significance, respectively.						

Source: authors own calculations upon the data from the central bank web-sites of the respective countries.

3. Assessing the key interest rate movements, deposit and credit growth during the period of economic recession

During the period of economic recession in 2009 and first quarter of 2010, there have been some substantial changes in the monetary policy stance and some reversal movements on the loan market. Due to the spillover effects of the world's economic and financial crisis, especially from the developed economies; the monetary policy authorities of SEE economies had to take various monetary policy measures in order to reduce the risks of deterioration of the stability of the financial and banking systems, reduce the negative trend in the economic activity by supporting the credit activities of the banks etc.

In analsying the main changes in the monetary policy stance, it should be stressed that various economies from SEE have taken different monetary policy measures due to the different risks by which the economies were faced off and different monetary policy regimes conducted. In general, the monetary policy measures taken, were mainly in a direction of maintaining the stability of the financial system and preventing the banking sector from the possible risks of failure caused by the economic recession. More precisely, the monetary policy measures of the Serbian National Bank, which conducts inflation targeting regime, were

directed towards the three areas: a) increasing the foreign exchange liquidity of the banking sector; b) stimulating the credit activity and c) protecting the financial stability. The monetary policy measures of the Croatian National Bank were also in a direction of supporting the credit activity of the banking system. For example, one of the most important was the abandoning of the credit growth limit since the middle of 2009. More precisely, this credit limit was imposed during 2008 in a period of inflationary pressures and was aimed to reduce the credit growth and hence, to reduce the inflationary pressure from the aggregate demand side.

The monetary policy measures of the National Bank of the Republic of Macedonia were in a different direction compared to the central banks of Serbia and Croatia. More specifically, the monetary policy measures were mainly in direction of limiting the banks' lending activities. This was done for the reason of reducing banks' liquidity due to the pressures on the foreign exchange market in a direction of depreciation of the Macedonian currency. Consequently, the credit growth limit was kept in force till the end of 2009, that similar as in Croatia, was imposed in 2008 during a period of inflationary pressures and more intensive credit growth. As additional measure for limiting the banks' lending activities was the increase of the reserve requirement for the loans denominated in foreign currency.

Figure 8:
Key central bank interest rate movements among the SEE econmies during the period: 2009 M1 - 2010 M3, (in %).

Source: central bank web-sites of the respective countries.
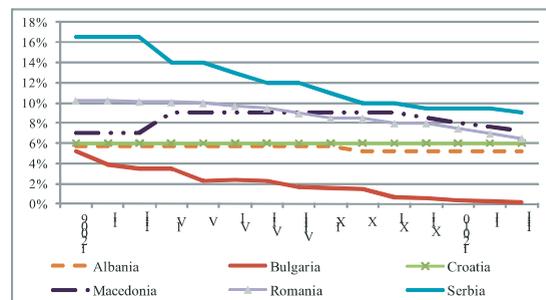

The changes in the reference monetary policy rates among the economies from SEE were also in a different direction that depicts the differences in the monetary policy regimes conducted. The monetary policy authorities of the SEE economies that implicitly or explicitly conduct an inflation targeting regime, have reduced their key policy rates in order to stimulate the lending activities of the banking system and to reduce the decline in the aggregate demand. As can be seen from figure 8, the central banks of Albania, Romania and Serbia have been continually reducing their key policy rates during 2009 and additionally during the first quarter of 2010. For example, the central banks of these three countries have reduced their key policy rates from the level of 6.3%; 10.3% and 17.8 in the end of 2008 to a level of 5.3%; 6.5% and 9%, respectively, in March 2010. The Bulgarian National Bank, although conducts a currency board regime, which is the strongest form of fixed exchange rate regime, has also substantially reduced its key policy rate that might be a results of the historically sharpest decline of the 3-month EURIBOR rate. The reaction of the Croatian National Bank, that conducts a tight managed floating exchange rate regime, was in a direction of maintaining the same level of its key policy rate as it was in December 2008 of 6%. Regarding the monetary policy stance in the Republic of Macedonia, during 2009 it can be noticed a completely divergent reaction. Namely, due to the fixed exchange rate regime strategy, the National Bank of the Republic of Macedonia has increased its key policy rate by two percentage points, i.e. from 7% to 9% in April 2009. More precisely, the major reasons for this sharp increase of the key policy rate were the pressures on the foreign exchange market in a direction of depreciation of the Macedonian currency. For example, during the first half of 2009 there have been relatively high risks of further deterioration of the current account deficit and additional substantial fall of the foreign currency inflows caused not only from the reduced exports, but also by the substantial reduction of the foreign direct and portfolio investments and private transfers. Nonetheless, due to the foreign currency inflow in the fourth quarter of 2009 on the basis of the Eurobond issuance and the sluggish

recovery of the domestic economy, the National Bank Republic of Macedonia decided to ease the monetary policy by reducing the key policy rate by a half percentage points in the end of 2009 and additionally by around one percentage points during the first quarter of 2010.

Regarding the deposit growth (inflow) the movements are quite different and no common pattern can be noticed (see figure 9). For example, in Albania, Macedonia and Bulgaria the deposit growth was declining during the first three quarters and afterwards is started to rebound moderately. In Romania and Croatia, the deposit inflow (growth) was declining during the whole period (2009Q1 - 2010Q1), but the major difference between these two economies is that in Romania the deposit growth was in positive territory whereas in Croatia it was in negative territory during the whole period. A completely different dynamics of the deposit growth was noticed in Serbia, where the deposit base was growing continually during the economic recession.

Figure 9:
Annual rates of deposit growth among the SEE econmies during the period: 2009 Q1 - 2010 Q3, (in %).
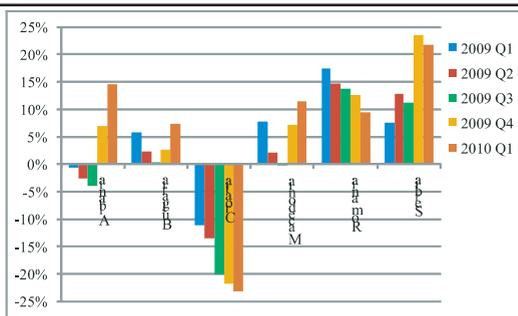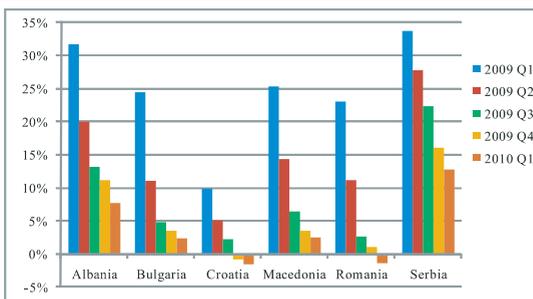
Source: central bank web-sites of the respective countries.

Another interesting point worth noting is that in 2009, the deposit-to-GDP ratio in Bulgaria, Croatia, Macedonia and Romania has increased (see figure 4) that can be mainly explained by the negative rates of growth of the GDP (see figure 1).

The credit activity substantially slowed down during 2009 and continued to decline further during the first quarter of 2010 (see figure 10), mainly as a result of the negative spillover effects from the global economic recession and financial crisis in the world and hence, the reduced sources of financing from abroad. The negative spillover effects were firstly felt on the loan market in the last quarter of 2008 and have gradually intensified during the 2009. Analysed from the supply side on the loan market, the banks were faced off with reduced sources of financing their lending activities and increased risk of borrowers' default. On the demand side the major factors that affected the slowdown of the credit activity were increased uncertainty about the future macroeconomic developments and relate to that increased uncertainty about the expected future income, uncertainty about the job security, worsening of the financial performances of the business sector and reduced profitability. These factors ultimately resulted in reduced interest at the private sector for taking new loans. Consequently, both factors form the supply side and demand side have affected the credit activity in 2009.

Figure 10:
Annual rates of credit growth among the SEE econmies during the period: 2009 Q1 - 2010 Q3, (in %).

Source: central bank web-sites of the respective countries.

As a result of these changes in the economies from SEE, including the changes in the monetary policy stance; the credit growth dynamics has substantially slowed down during the 2009 and continued to slow down further during the first quarter of 2010. For example, the annual rate of credit growth in Albania and Serbia from above 30% in the first quarter of 2009 went down to around 8% and 13%, respectively in March 2010. Similarly, in Bulgaria and Macedonia, the credit growth from more than 25% during the first quarter of 2009 was reduced to less than 5% in first quarter of 2010. In some economies such as Romania and Croatia, the credit growth was even negative in 2009 and first quarter of 2010. For instance in these two economies, the credit growth from 23% and 10% in the first quarter of 2009 went down to around -1.5% in first quarter of 2010. Consequently, because of the gradual slow down of the credit growth, there has been a substantial slow down of the development of the financial intermediation. This can be noticed by the reduction of the growth dynamics of credit-to-GDP ratio that in some economies like Albania, Croatia and Macedonia was reduced to less than two percentage points (see figure 7).

3.1. Is the bank lending channel operational during the period of economic recession?

As already discussed in section 2.4, the first method of analysis is the visual inspection of the data. The key policy rates of all SEE economies, apart from Macedonia have been reduced, whereas the deposit growth was different among the SEE economies, for which, again no straightforward conclusion can be drawn. For example, in Albania and Bulgaria, despite the gradual reduction of the key policy rates, the deposit inflow has been declining till the third quarter of 2009, which is in contrast to the bank lending channel theory. Nonetheless, in the forthcoming quarters it started to rebound which is in line with the bank lending theory. In Romania the deposit growth has been declining continually during the economic recession despite the continual decrease of the key policy rate that is also in contrast to the bank lending channel theory. In Croatia the deposit growth has also been declining continually whereas the key policy rate was kept almost unchanged. A more systematic pattern that is in line with the bank lending theory, can be noticed in Macedonia and Serbia. More precisely in Serbia, the deposit growth has been increasing whereas the key policy rate has been declining continually. In Macedonia the deposit growth has been declining till the third quarter of 2009 when the key policy rate has been increased. Later on during the next quarters when the key policy rate was reduced, the deposit growth started to rebound.

Regarding the second chain of the bank lending channel, i.e. the connection between the deposit and credit growth, again no straightforward conclusion can be drawn. For example, in all SEE economies the credit growth has been declining continually during the economic recession, whereas the deposit inflow has varied, i.e. in some quarters in some economies it has increased and in others it has decreased. The only systematic connection that is line with the bank lending channel theory can be noticed in Croatia. More precisely, the deposit inflow has been declining continually during the period of economic recession and the same reaction is noticed on the loan market.

Additionally, in order to summarise if the bank lending channel is operational during the economic recession, similarly as in section 2.4, we conduct a simple correlation analysis. The results from the correlation coefficients between the key policy rates and deposit growth in almost all SEE economies, apart from Romania, are negative (see table 2) and unlike the previous results presented in section 2.4; they are statistically significant for three more countries, e.g. Albania, Macedonia and Serbia. This may indicate that in these economies might exist a significant connection between banks' deposit inflow and changes in the key policy rate that is in line with the bank lending channel theory. For the case of Romania, the correlation coefficient between the key policy rate and the deposit growth is statistically significant but has a contrary sign from the predictions of the bank lending channel theory. Regarding the correlation coefficients between the deposit growth and credit growth (the second chain of the bank lending channel), the correlation coefficients, unlike previously, is positive and statistically significant for one more country, e.g. Romania. However, for Serbia the correlation coefficient is statistically significant but negative which is in contrast to the predictions of the bank lending theory.

Table 2: Correlation coefficients between the key policy rates and deposit growth and deposit growth and credit growth for the SEE economies during the period 2009Q1 - 2010Q1.

For the period 2009 Q1- 2010 Q1						
	Albania	Bulgaria	Croatia	Macedonia	Romania	Serbia
Correlation between the key policy rate and deposit growth	-0.92**	-0.09	-0.96***	-0.83*	0.97***	-0.86**
Correlation between deposit and credit growth	-0.59	0.22	0.97***	0.08	0.91**	-0.91**

*** / ** / * denotes significance at 1%, 5% and 10% level of significance, respectively.

Source: authors own calculations upon the data from the central bank web-sites of the respective countries.

Overall, the results from the correlation coefficients may indicate once again that the bank lending channel even during the economic recession is operational in Croatia, but not in the rest of the SEE economies because either the correlation coefficients have a contrary sign(s) from the theoretical predictions and/or are statistically insignificant. Nonetheless, as mentioned in section 2.4, these results should be taken with caution due to the relatively small number of observations and the short time span.

4. Conclusions

The main aims of this paper were to assess the credit activity among the SEE economies and whether the bank lending channel is operational in periods of stable macroeconomic environment and in period of economic downturn during 2009 and the beginning of 2010. Consequently, we have analysed the key central bank interest rate movements, deposit and credit growth in order to examine if they are interrelated and move in a systematic pattern as the bank lending channel theory predicts.

By analysing the key interest rate moments and deposit growth among the SEE economies during the period of economic growth, no clear common pattern could be established. Namely, the key central bank interest rate movements among the SEE economies had different starting levels, different variability and different movements over time. Similar conclusions can be drawn for the deposit growth, which has also been with different intensity and in different direction among the SEE economies. Regarding the credit growth, it can be summarised that in all SEE economies, apart from Croatia, has been relatively high till the end of 2008. More precisely, in almost all SEE economies in most of the years the annual rates of credit growth have been much higher than 30% that may indicate to a period of "credit boom". Additionally, the relatively high credit growth led to high level of financial development. This may be seen by the continual increase of the credit-to-GDP ratio that may also indicate to a "credit boom" because in almost all SEE economies it has been growing by more than two percentage points.

In period of economic recession, the monetary policy authorities have taken various monetary policy measures in order to maintain the stability of the financial and banking system and in some of the to stimulate the credit activity and hence, the aggregate demand. Regarding the changes in the reference interest rates, apart from Macedonia, have been in the same (downward) direction. Regarding the reaction of the deposit inflow, again no clear pattern can emerge, whereas the credit growth in all SEE economies has been changing in the same direction. More precisely, during 2009 and first quarter of 2010, the credit growth has been declining continually.

Furthermore, this paper attempted to explore if the bank lending channel has been operational during the two distinctive periods: a) period of stable macroeconomic environment and economic growth and b) period of economic recession. The main finding from both methods, i.e. visual inspection of the data and correlation coefficients, may imply that during the both periods the bank lending channel might not be

operational in the SEE economies. An exception might be Croatia where according to the correlation coefficients; there might be some indication that the bank lending channel is operational. However, one of the weaknesses of the bank lending channel theory of Bernanke and Blinder (1988) is that it explains the credit activity basically through the loan supply function that takes into account mainly the supply side factors of the loan market. As argued by, Kashyap and Stein (1993) and Bernanke and Gertler (1995), the loan market equilibrium and the functioning of the bank lending channel can also be driven by the loan demand side but nonetheless, in the empirical literature it is difficult to clearly disentangle what specific factors may affect the loan demand side. This might also be the case in the SEE economies where the functioning of the bank lending channel might have also been affected by various demand side factors.

As open issues for a further research may be to explore what are the major factors that cause the bank lending channel to be non-operational. Related to that, it might be important to explore how various macroeconomic factors and banks' specific characteristics like quality of their loan portfolio, asset size and liquidity; may affect banks' loan supply function and banks' lending behaviour. Moreover another important factor worth investigating is the role of the foreign ownership into the banking sector. As argued by Coricelli et al. (2006), the foreign ownership sometimes is seen to impede the functioning of the bank lending channel because the foreign owned banks may borrow from their "parent" institutions from abroad by much cheaper price in order to expand their lending activities on the loan market. Additional issues worth investigating in more depth may be how the concentration and the degree of competitiveness among the banks may also affect their lending behavior. By investigating these issues, it will provide some useful information to the monetary policy authorities in designing their monetary policy more appropriately in order to take more efficient monetary policy measures, especially in periods of economic downturn as it was during 2009 and beginning of 2010.

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