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Content

From the Editor

The South East European Journal of Economics and Business (SEJEB) is a research-oriented journal that publishes double-line peer-reviewed articles twice a year. This issue (Volume 11, Issue 2) brings us six empirical papers focused on a diverse sample of countries and regions, including of course South-East European countries, in addition to papers whose research covers a global sample. From this collection of empirical papers, the SEJEB audience can gain insights into general macroeconomic growth literature, competitiveness, stock markets, trade and money demand in the Western Balkan region, as well as environmental policy in Turkey. The consequences of the global economic crisis still occupy the attention of the majority of contributions. A short sequential introduction of the published papers in this volume follows.

Akbas reports his analysis of "The relationship between board characteristics and environmental disclosure: Evidence from Turkish listed companies", which is based on a sample of 62 companies and data from 2011. Specifically, this paper empirically examines whether the key characteristics of the board of directors – including, board size, board independence, gender diversity and audit committee independence - are systematically associated with the level of the firms' environmental disclosures. The author reports that only board size has a statistically significant and positive association with the extent of environmental disclosure. Simply put, firms with larger boards of directors disclose more environmental information in comparison to firms with smaller boards. This finding contributes to the empirical literature that provides a contradictory finding on the relationship between board size and environmental disclosure.

Botric and Broz investigate "Competitiveness, trade with the EU and labour markets: Challenges for the Western Balkans". This paper combines macroeconomic and microeconomic analysis in assessing the evolution of bilateral intra-industry trade share with EMU (2005-2013) and the effect of export from the Western Balkan (WB) region on job creation (2013). The empirical focus used in this research includes also an investigation of the systematic influence of the latest crisis on trade changes in the region. The authors conclude that trade patterns between WB economies and EMU trading partners did not exhibit significant changes over the observed period. Moreover, during the recession period most WB economies adjusted their unit labour costs, which was helpful in supporting their competitiveness. The paper also implies that exporting companies did not create additional advantages to job creation in comparison to other companies.

Chirwa and Odhiambo's contribution, "Macroeconomic determinants of economic growth: A review of international literature", provides a qualitative narrative review of the growth literature with the intention of uncovering similarities and discrepancies in determinants that are empirically identified as affecting economic growth. The general finding reveals that there are some similarities, but also structural differences between the literature focused on the determinants of growth once a distinction is made based on the level of economic development. The key determinants of economic growth in developing economies include foreign aid, FDI, fiscal policy, investment, trade, human capital, demographics, monetary policy, natural resources, reforms and geographic, regional, political and financial factors. In developed countries, these determinants include physical capital, fiscal policy, human capital, trade, demographics, monetary policy and financial and technological factors. A review of the literature focused on SEE is an integral part of this investigation.

Mano's "Trade liberalisation and economic growth in Macedonia" study investigates whether trade liberalisation contributes to the economic growth of this WB country and focuses on the period 1993-2014. Through the use of an autoregressive distributed lag model, the author finds that openness has a positive and significant effect on Macedonian economic growth. As such, this finding comes with a policy recommendation – public policies favoring trade openness should bring both short-run and long-run positive effects on the growth of the Macedonian economy.

"The stability of long-run money demand in Western Balkan countries: An empirical panel investigation", by Kjosevski, Petkovski, and Naumovska, offers an applied investigation focused on the key component of monetary policy transmission mechanisms in a market economy, namely money demand. The authors examine the stability of money demand in five WB countries by using quarterly data over the period 2005-2014. The empirical results identify the long-run money demand relationship with the real M1 nominal interest rate, exchange rate, inflation rate and a variable controlling for the effect of the European debt crisis. The authors conclude that real money demand in WB countries was stable in the period analyzed.

Lazarov, Kacarski, and Nikoloski provides us with an empirical paper titled "Empirical analysis of stock market development: The case of Macedonia". The authors use panel estimators to investigate the influence of stock market development on economic growth in the Central and South-East European region over the period 2002-2012. Special attention is devoted to the stock market in the Republic of Macedonia. The paper's findings indicate that stock market development is positively associated with economic growth in the sample analyzed. However, the Macedonian stock market is marked as underdeveloped and faces many challenges caused by the global financial crisis.

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THE RELATIONSHIP BETWEEN BOARD CHARACTERISTICS AND ENVIRONMENTAL DISCLOSURE: EVIDENCE FROM TURKISH LISTED COMPANIES

Halil Emre Akbas

Abstract

This study primarily aims to analyze the relationship between selected board characteristics and the extent of environmental disclosure in annual reports of Turkish companies, using a sample of 62 non-financial firms listed on the BIST-100 index at the end of 2011. The content analysis is used to measure the extent of environmental disclosure. Four board characteristics, namely board size, board independence, board gender diversity and audit committee independence, are considered as the independent variables that may have an impact on the extent of the environmental disclosures of Turkish companies. According to the results of the regression analysis, only board size has a statistically significant and positive relationship with the extent of environmental disclosure. This result implies that firms with larger boards disclose more environmental information than firms with smaller boards. On the other hand, the rest of the independent variables are found to be unrelated to the extent of environmental disclosure. The low degree of independence and gender diversity on the boards of the sample companies for the time period analyzed in the study could be one possible explanation for this result.

Keywords: *Environmental disclosure, board characteristics, corporate governance, Turkish companies*

JEL: *M00, M40, Q00, G30*

1. INTRODUCTION

As the major power of economic development, firms have been seen as accountable for the environmental impacts of their activities. Many stakeholders, such as customers, governments and regulatory bodies, non-governmental organizations, local communities, investors, financial agencies and institutions, employees and society as a whole have paid great attention to the environmental impacts of firms, i.e., emissions of greenhouse gases, carbon footprint, their disposal of toxic wastes. Furthermore, over the past few years, financial crises, accounting and auditing scandals such as those at Enron, WorldCom, Global Crossing, HIH Insurance and Parmalat have led to a growing demand for transparency about the operations of firms (Wulf et al. 2014; Cormier et al. 2015; Brammer and Pavelin 2006; Kolk 2008). In that context, corporate environmental disclosure has emerged as an effective tool that enables firms to communicate their environmentally friendly activities and as an important information source about the

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environmental impacts of firms' operations for their stakeholders (Cormier et al. 2015). Consequently, an increasing number of firms all over the world have started to disclose environmental information, making environmental information disclosure an important dimension of accounting information systems. (Da Silva Monteiro and Aibar-Guzmán 2010a; Da Silva Monteiro and Aibar-Guzmán 2010b; Pahuja 2009; Holland and Foo 2003; Belal 2000; Ahmad and Mousa 2010).

In this sense, it is not surprising that corporate environmental disclosure has attracted substantial growth in attention from academic researchers (Bubna-Litic 2008; Ahmad and Mousa 2010; Holland and Foo 2003; Deegan 2002; Sen et al. 2011; Da Silva Monteiro and Aibar-Guzmán 2010b; Sahay 2004; Saha and Akter 2013; Kolk et. al 2001; Brammer and Pavelin 2006). Despite a growing body of literature on corporate environmental disclosure, most of the previous studies have investigated possible determinants or motivations of environmental disclosure, especially focusing on corporate characteristics, such as financial performance, size, age, industry membership, firm reputation, market reaction or country of origin (Haniffa and Cooke 2005; Brammer and Pavelin 2006: Michelon and Parbonetti 2012). On the other hand, it is possible to say that there has been relatively few attempts to investigate the relationship between corporate governance structure and environmental information disclosure, especially in the context of emerging economies (Michelon and Parbonetti 2012; Khan et al. 2013). However, corporate governance mechanisms, in particular board structure, could be an important determinant of environmental disclosure, since firms' disclosure policies are basically determined by the board of directors (Ernstberger and Grüning 2013; Allegrini and Greco 2013; Cheng and Courtenay 2006; Gul and Leung 2004; Cormier et al. 2015; Iatridis 2013; Arcay and Vazquez 2005; Michelon and Parbonetti 2012).

The primary purpose of this study is therefore to extend prior research on environmental disclosure by analyzing the relationship between corporate governance and the extent of environmental disclosures made by companies operating in a developing country, Turkey. Specifically, this paper empirically examines whether the key characteristics of the board of directors, namely board size, board independence, gender diversity and audit committee independence, are associated with the level of Turkish firms' environmental disclosures. In order to test this relationship, the annual reports of 62 non-financial firms listed on the Borsa Istanbul 100 (BIST-100) – formerly named the Istanbul Stock Exchange 100 (ISE-100) - index for the year 2011 are analyzed through content analysis.

The results of the study indicate that in the context of Turkey, only board size is found to be positively related to the extent of environmental disclosure. The findings of the study reveal that there is no statistically significant relationship between the extent of environmental disclosure and other board characteristics, namely board independence, board gender diversity and audit committee independence.

The present study contributes to the existing literature on environmental disclosure by providing some empirical results about the relationship between characteristics of the board of directors, which is an important corporate governance mechanism and the extent of environmental disclosure from a developing country, Turkey. In particular, this is the first attempt that solely focuses on empirically analyzing the association between the key characteristics of the board of directors and the environmental disclosures of Turkish companies, as far as the author is aware.

The rest of the paper is organized in the following manner. After this introduction, Section 2 provides an overview of the previous related literature and introduces the hypotheses of the study. Section 3 outlines the data and methodology. Section 4 presents the empirical findings of the study. Finally, Section 5 discusses the conclusion, limitations and future research opportunities.

2. LITERATURE REVIEW AND HYPOTHESES

Corporate governance basically consists of proper mechanisms that allow stakeholders to exercise control over management and aims to create an optimum balance among different economic, individual and social goals and increase transparency (Sharif and Rashid 2014; Rupley at al. 2012; Khan 2010; Arcay and Vazquez 2005). In this sense, it can be easily said that both corporate governance and environmental disclosure tend to reduce information asymmetries between managers and stakeholders, (Ernstberger and Grüning 2013; Iatridis 2013), however relatively less attention has been paid to link these two research areas (Khan et al. 2013).

Agency theory provides a framework to link corporate governance to environmental disclosure, as corporate governance mechanisms intend to control the agency problem and align the interests of management and stakeholders by reducing information asymmetry (Allegrini and Greco 2013; Ho and Wong 2001). In this framework, it is suggested that the board of directors is the ultimate internal control mechanism for overseeing managers (agents) on behalf of shareholders and other stakeholders (Rupley at al. 2012; Eng and

Mak 2003; Said et al. 2009; Ben-Amar and McIlkenny 2015). From this point of view, this study primarily aims to merge corporate governance literature and environmental disclosure literature by analyzing the relationship between corporate governance, in particular board characteristics, and the extent of environmental disclosures of Turkish companies.

Based on the previous literature, four board characteristics are examined in this study. These are board size, board independence, gender diversity and audit committee independence. The previous literature related to these four board variables are reviewed and hypotheses on their relation with the extent of environmental disclosure are proposed below.

2.1. Board Size

As an important determinant of board effectiveness (Allegrini and Greco 2013; Amran et al. 2014), board size can be seen as a crucial corporate governance mechanism that may influence the level of corporate voluntary disclosure, including environmental disclosure (Ntim et al. 2013). On the other hand, both the theoretical and empirical literature provide contradictory explanations regarding the relationship between board size and environmental disclosure. From the agency theory perspective, a greater number of directors on the board may contribute to its monitoring effectiveness, since larger boards provide diversity in terms of expertise and more capacity for monitoring management (Larmou and Vafeas 2010; Uwuigbe et al. 2011; Sun et al. 2010). Furthermore, Elzahar and Hussainey (2012) stated that the increased board size may lead to an increase in the number of directors who have a financial or accounting background, which could have a positive influence on corporate environmental disclosure (Elzahar and Hussainey 2012). Consistent with these arguments, the results of the empirical studies such as Janggu et al. (2014), Ntim et al. (2013), Jizi et al. (2014), Haji (2012), Akhtaruddin et al. (2009), Buniamin et al. (2011), Sun et al. (2010), Cheng and Courtenay (2006), Liao et al. (2014), Allegrini and Greco (2013), Samaha et al. (2015), Lim et al. (2007), Kathyayini et al. (2012), Hidalgo et al. (2011) documented a positive relationship between the board size and the level of disclosure.

Contrary to these suggestions, Jensen (1993) argues that larger boards are less likely to be effective and easier to be controlled and manipulated by the CEO than smaller boards (Jensen 1993). In a similar vein, it is suggested that as the number of the directors on the board increases, the monitoring capacity of the board also increases, but this benefit may be outweighted by the incremental cost of poorer communication and a slower decision making process (John and Senbet 1998; Lipton and Lorsch 1992; Hidalgo et al. 2011). Futhermore, Kathyayini et al. (2012) state that decisions related to the content and extent environmental information disclosure need effective communication and coordination among board members. Because of these reasons, a negative relationship between board size and the level of environmental disclosure can be expected and this argument is supported by the results of the empirical studies such as Uwuigbe et al. (2011) and Bouaziz (2014).

Besides these results, some of the empirical studies found a non-significant relationship between board size and the extent of voluntary disclosure (e.g., Ienciu et al. 2012; Arcay and Vazquez 2015; Saha and Akter 2013; Fathi 2013; Amran et al. 2014 and Sartawi et al. 2014).

Based on these contradictory conclusions from both theoretical and empirical studies, a positive, negative or no relationship between the board size and the extent of environmental disclosure can be expected. Therefore, the first research hypothesis is formulated as follows:

H1: There is a relationship between the board size and the extent of the environmental disclosure.

2.2. Board Independence

Another major corporate governance mechanism that is widely investigated in the environmental disclosure literature is board independence (Khan et al. 2013; Amran et al. 2014). The board of directors generally consists of dependent and independent members. Dependent members either have direct responsibility for business management or are the members of the family that owns the firm. On the other hand, independent members basically represent the interests of minor shareholders since they are not directly involved in firm actitivities and their only affiliation with the firm is their directorship (Rouf 2011; Mohamad and Sulong 2010; Haji 2012; Sharif and Rashid 2014). Thus from an agency theory perspective, it is widely accepted that as the proportion of independent directors on the board increases, the effectiveness of the board in monitoring and controlling management also increases (Jizi et al. 2014; Liao et al. 2014; Chau and Gray 2010). It is also argued that as independent directors are less aligned to management, they can be seen as a balance mechanism to ensure that companies act in the best interests of shareholders, other stakeholders and society generally (Sharif and Rashid

2014; Khan 2010). From this point of view, independent directors may encourage companies to disclose more information to outside stakeholders. Therefore, a positive relationship between board independence and environmental disclosure can be expected (Michelon and Parbonetti 2012; Eng and Mak 2003).

In line with these theoretical arguments, the results of empirical studies usually indicate that the proportion of independent directors on the board has a positive impact on the volume of voluntary disclosure, including environmental disclosure (e.g., Ntim et al. 2013; Gisbert and Navallas 2013; Rupley et al. 2012; Arcay and Vazquez 2005; Sharif and Rashid 2014; Jizi et al. 2014; Barros et al. 2013; Khan et al. 2013; Cheng and Courtenay 2006; Liao et al. 2014; Allegrini and Greco 2013; Cai et al. 2014).

Based on theoretical explanations and empirical results, the second research hypothesis is proposed as follows:

H2: There is a positive relationship between the proportion of independent directors on the board and the extent of environmental disclosure.

2.3. Gender Diversity

As women and men have traditionally, culturally and socially different backgrounds, the gender diversity of the board has been considered an important dimension of corporate governance that can influence the extent of environmental disclosure (Liao et al. 2014). Huse and Solberg (2006) ascertain that women may make contributions on corporate boards by creating alliances, preparation and involvement, taking part in important decisions, taking leadership roles and being visible. Barako and Brown (2008) state that an increased proportion of women on the board leads to better corporate communication. On the other hand, Liao et al. (2014) argues that as women have a different role from men in society, female directors on the board may take a different approach to environmental issues. In line with these arguments, Rupley et al. (2012) documented a positive relationship between the proportion of women directors on the board and the quality of environmental disclosure. Also, Liao et al. (2014), Fernandez-Feijoo et al. (2014), Frias-Aceituno et al. (2013), Ben-Amar and McIlkenny (2015) and Barako and Brown (2008) found a positive a relationship between the extent of disclosure related to environmental issues and the number of women members on the corporate board. Thus the third hypothesis of the study is formulated as follows:

H3: There is a positive relationship between the proportion of women directors on the board and the extent of environmental disclosure.

2.4. Audit Committee Independence

The audit committee has a crucial role in achieving the objectives of corporate governance (Said et al. 2009). From an agency theory perspective, the audit committee represents one of the functional tools that can be used for attenuating agency costs (Forker 1992), since it serves as a monitoring mechanism that aims to improve the quality of information reported to stakeholders and the auditing process (Pincus et al. 1989; Collier 1993). In this framework, empirical research generally report a positive a relationship between the existence of an audit committee and the volume and the quality of environmental disclosure (e.g., Ho and Wong 2001; Iatridis 2013; Khan et al. 2013; Ettredge et al. 2011; Akhtaruddin et al. 2009).

On the other hand, the literature also highlights the composition of audit committees with dependent and independent members as an important factor that can have an influence on the level of disclosure (Akhtaruddin et al. 2009). In this framework, it is suggested that for the purpose of establishing more efficient and effective boards in monitoring the disclosure policies and processes of companies, auditing committees should be mostly composed of independent directors (Mohamad and Sulong 2010; Bouaziz 2014). Consistent with this suggestion, Iatridis (2013) found a positive relationship between envirionmental disclosure quality and the percentage of independent directors sitting on an audit committee in Malaysia. Likewise, Samaha et al. (2015) reported a positive relationship between the level of voluntary disclosure and the percentage of independent directors in the audit committee. In light of these results, the fourth hypothesis is formulated as follows:

H4: There is a positive relationship between the proportion of independent directors on the audit committee and the extent of environmental disclosure.

3. DATA AND METHODOLOGY

3.1. Sample

This study primarily aims to investigate the relationship between the key charecteristics of the board of directors and the extent of environmental disclosures of Turkish companies. For this purpose, the sample of

the study is drawn from firms listed on the BIST-100 index in the financial year 2011.

A sample of the BIST-100 index firms is employed for two reasons. First, the results of the previous studies show that larger firms tend to disclose more environmental information (Cormier and Magnan 2003; Deegan and Gordon 1996). In this framework, BIST 100 index represents approximately 90% of the BIST market capitalization. Second, the firms that are included in the BIST 100 index represent a diverse range of industry sectors, including food and beverage, wood, paper and printing, metal products and machinery, electricity, wholesale and retail trade and telecommunications.

On the other hand, because of their limited effect on the environment and the existence of significant differences in their corporate and operation structures, financial companies are excluded from the sample (Da Silva Monteiro and Aibar-Guzmán 2010a; Frias-Aceituno et al. 2013). After this elimination, the final sample consists of 62 companies across 15 sectors according to the Borsa Istanbul classification.

Table 1 reports the distribution of the sample. According to Table 1, the chemical, petroleum and plastic sector, with 13 companies, has the highest percentage of companies within the sample (20.97%) while with 1 company the textile and leather and other services sectors have the smallest number of companies in the sample.

Table 1: Distribution of Companies by Sectors

Sector	Number of Companies	Percentage
Food and Beverage	4	6.45
Textile and Leather	1	1.61
Wood, Paper and Printing	5	8.06
Chemical, Petroleum and Plastic	13	20.97
Nonmetal Mineral Products	4	6.45
Basic Metal	5	8.06
Metal Products and Machinery	10	16.13
Other Manufacturing	2	3.23
Electricity	2	3.23
Transportation	2	3.23
Wholesale and Retail Trade	5	8.06
Telecommunications	2	3.23
Sports	4	6.45
Technology	2	3.23
Other Services	1	1.61
Total	**62**	**100**

3.2. Variables

3.2.1. Dependent Variable – The Extent of Environmental Disclosure

The extent of Turkish firms' environmental disclosure constitutes the dependent variable of the study. The annual reports of sampled firms for the year of 2011 are analyzed through content analysis in order to measure the extent of the environmental disclosure of Turkish companies. Content analysis was defined by Abbott and Monsen (1979) as: "*A technique for gathering data that consists of codifying qualitative information in anecdotal and literary form into categories in order to derive quantitative scales of varying levels of complexity*" (Abbott and Monsen, 1979, p.504). The annual reports are chosen as a basis for data collection on environmental disclosure because they are produced regularly, especially by all of the listed companies (Tilt 2001) and so they represent the most often used communication channels of companies (Hughes et al. 2001). Finally, compared to all other disclosure formats, annual reports are considered the most credible medium for environmental disclosures (Tilt 1994).

Guthrie and Abeysekera (2006) and Gamerschlag et al. (2011) emphasize that selection of a "unit of analysis" presents another critical issue in the process of measuring the extent of environmental disclosure through content analysis. In this respect, Holsti (1969) p. 116 defined recording unit as "the specific segment of content that is characterized by placing it into a given category" (Holsti 1969). As the number of words in a recording unit has the advantage of being categorized more easily (Damak-Ayadi 2010) and needs less subjective judgment by the researcher (Gamerschlag et al. 2011), the extent of environmental disclosures is measured by counting the number of words related to the environmental disclosure.

3.2.2. Independent Variables – Board Characteristics

Table 2 summarizes the measurement of the independent variables used in this study. As discussed in the literature review in section four, board characteristics are examined as independent variables, namely, board size, board indepence, gender diversity and audit committee independence. The data relating to these board characteristics are collected from the annual reports of the sampled companies.

Board size (BSIZE) is measured by the total number of directors on the board. Board indepence (BIND) is measured by the percentage of the independent directors to the total number of directors on the board.

Table 2: Summary of Independent and Control Variables

Variables	Code	Measurement
Independent Variables		
Board Size	BSIZE	The total number of directors on the board of a company
Board Independence	BIND	The percentage of independent directors of the total number of directors on the board of a company
Gender Diversity	GEND	The percentage of female directors of the total number of directors on the board of a company
Audit Committee Independence	ACIND	The percentage of independent directors of the total number of directors on the audit committee of a company
Control Variables		
Company Size	SIZE	The natural logarithm of total assets at the end of fiscal year 2011
Profitability (Return on assets)	PROF	The ratio of net profit after tax to total assets at the end of fiscal year 2011
Industry Membership	INDM	Dummy variable which is equal to 1 if the company operates in an environmentally sensitive industry and 0 otherwise.

Gender diversity (GEND) is measured by the percentage of female directors of the total number of directors on the board. Finally, audit committee independence is measured by the percentage of independent directors of the total number of directors on the audit committee of a company.

3.2.3. Control Variables

In order to avoid model missepification and control other factors that may have an influence on environmental disclosure (Jizi et al. 2014), some corporate characteristics are included as control variables in the study. Previous literature documents that company size, profitability and industry membership may affect the extent of environmental disclosure (e.g., Deegan and Gordon 1996; Brammer and Pavelin 2006; Cormier and Magnan 2003; Ho and Taylor 2007; Liu and Anbumozhi 2009).

In this study, company size is measured as the natural logarithm of total assets of the company. Profitability is measured as the ratio of net profit after tax to total assets. Finally, industry membership is a dummy variable that takes 1 for companies belonging to environmentally sensitive industries and 0 for those belonging to non-sensitive industries. Based on previous empirical studies, the food and beverage, textile and leather, wood, paper and printing, chemical, petroleum and plastic, nonmetal mineral products, basic metal, metal products and machinery, other manufacturing, electricity and other services industries are considered environmentally sensitive industries. For the control variables, in the Turkish context, Akbas (2014) found that both company size and industry membership are positively related to the extent of environmental disclosure of Turkish firms. On the orther hand, the same study documented that profitability has a negative relationship (Akbas 2014).

3.3. Model and Method of Estimation

For the purposes of investigating the relationship between board characteristics and the extent of environmental disclosure and testing the validity of the aforementioned hypotheses, the following ordinary least square (OLS) regression model with cross-sectional data is estimated:

$$EID_i = \alpha_0 + \beta_1 BSIZE_i + \beta_2 BIND_i + \beta_3 GEND_i + \beta_4 ACIND_i + \beta_5 SIZE_i + \beta_6 PROF_i + \beta_7 IND_i + \varepsilon_i$$

Where:

EID: the extent of environmental disclosure of company *i* in 2011 (Total number of words related to the environmental issues in the annual report of the company)
α_0: intercept
BSIZE: board size of company *i*
BIND: board indepence of company *i*
GEND: board gender diversity of company *i*
ACIND: audit committee independence
SIZE: size of company *i*
PROF: profitability of company *i*
IND: industry membership of company *i*
ε_i: random error term

4. RESULTS

4.1. Descriptive Statistics

Table 3 reports the descriptive statics. The mean, median, standard deviation, minimum and maximum values and measures of skewness and kurtosis for the

Table 3: Descriptive Statistics

Panel A – Dependent, Independent and Control Variables							
Variable	**Obs.**	**Mean**	**Median**	**Std. dev.**	**Min.**	**Max.**	**Skew.**	**Kurt.**
EID	62	623.952	300.500	849.113	0.000	3854.000	2.103	4.545
BSIZE	62	7.532	7.000	1.989	5.000	12.000	0.499	-0,676
BIND	62	0.102	0.000	0,152	0.000	0.570	1.208	0.311
GEND	62	0.054	0.000	0.094	0.000	0.400	1.719	2.402
ACIND	62	0.155	0.000	0.264	0.000	1.000	1.555	1.653
SIZE	62	20.927	20.937	1.375	17.824	23.565	0.194	-0.607
PROF	62	0.049	0.064	0.190	-1.188	0.433	-4.477	29.881

Panel B – Dummy Variable		
Industry Membership	**Frequency**	**Valid Percentage**
Sensitive (1)	47	75.8
Non-Sensitive (0)	15	24.2
Total	**62**	**100**

numerical variables are presented in Panel A and the frequencies and percentages for the dummy variable, industry membership, are displayed in Panel B.

The mean value of the dependent variable of the study, the extent of environmental disclosure (EID) is 623.952 with a range of 0 to 3854. Based on these figures, it is evident that there are large variations in the volume of the environmental disclosures of the sampled companies in their annual reports. With regard to the independent variables, Table 3 shows that the mean value of board size ranges from a minimum of 5 to a maximum of 12 with a mean of 7.532, about 8 members. On the other hand, the percentage of the independent directors of the total number of directors on the board of the sampled firms varies between 0.00 to 57%, with an average of 10.2 %. This finding indicates that the sampled firms have a majority of dependent directors on their boards and that a majority of firms do not have independent members on their boards. For the third independent variable, gender diversity, the average percentage of women representation on the board is 5.4% and most of the companies do not have a woman member on their boards (median=0.00). In line with board independence, the percentage of independent directors on the audit committee is relatively low with a mean value of 15.5 %.

Regarding the control variables, Table 3 shows that the mean value of size that is measured by the natural logarithm of total assets at the end of year 2011 is 20.927, implying that the average total assets in Turkish Lira terms of 3.008 bn, thus it can be easily said that the sample consists of relatively large companies. Furthermore, companies in the sample have an average ROA of 4.9 %, with a range from -118.8 to 43.3 %. Finally, Panel B of Table 3 presents that the majority of the (75.8%) sampled companies are from environmentally sensitive industries. These results indicate that a wide variation in the independent and control variables.

4.2. Correlation Matrix

Table 4 presents the correlation matrix for the variables used in the study. The results of the Pearson correlation analysis indicate that the extent of environmental disclosure is positively correlated to board size, with a correlation coefficient of 0.486 ($p < 0.001$),

Table 4: Pearson Correlation Matrix

Variables	**EID**	**BSIZE**	**BIND**	**GEND**	**ACIND**	**SIZE**	**PROF**	**IND**
EID	1							
BSIZE	0.486*	1						
BIND	-0.210	-0.238	1					
GEND	0,068	-0,001	0,109	1				
ACIND	-0,225*	-0,149	0,831*	0,052	1			
SIZE	0.435*	0.407*	-0.071	0.052	-0.075	1		
PROF	-0.030	0.015	-0.007	0.110	-0.037	0.213	1	
IND	0.232	-0.038	-0.241	0.034	-0,386*	-0,019	0.242	1

*Correlation is significant at the 0.01 level (2-tailed)

in line with the first hypothesis of the study.

On the other hand, the results also show that the other independent variables (board independence, gender diversity and audit committee independence) are not statistically correlated to the extent of environmental disclosure, contrary to the hypotheses. For the control variables, firm size is found to be positively correlated to disclosure with a correlation coefficient of 0.435.

4.3. Regression Results

Table 5 reports the results of OLS regression analysis testing the relationship between the extent of environmental disclosure and board characteristics. According to Table 5, the F-statistic is 5.17 (p=0.0001) and this result supports that the estimated model is statistically significant, while the adjusted R-squared of 0.3239 indicates that the independent and control variables explain 32.39% of the variability of the extent of environmental disclosure.

The results also indicate that, as hypothesized (H1), board size has a positive and statistically significant relation (p=0.004) with the extent of environmental disclosure. This result provides supporting evidence for the first hypothesis and implies that firms with larger boards are likely to disclose more environmental information than firms with smaller boards. This result is consistent with the findings of the many previous studies (e.g., Janggu et al. 2014; Jizi et al. 2014; Haji 2012; Sun et al. 2010; Liao et al. 2014; Allegrini and Greco 2013; Samaha et al. 2015; Lim et al. 2007; Kathyayini et al. 2012).

On the other hand, the coefficients for the variables board independence, gender diversity and audit committee independence are not statistically significant. These results suggest that the presence of independent directors and women directors on the board and the presence of independent directors on the audit committee are unrelated to the level of environmental disclosures of the sampled companies. These findings are in line with the results of the studies conducted by Michelon and Parbonetti (2012), who found an non-significant relationship between the proportion of independent directors and sustainabilty disclosure and Khan (2010), who documented that women representation on the board is not statistically significantly associated with corporate social responsility reporting, Bouaziz (2014) reported a non-significant relationship between the audit comittee independence and the voluntary financial disclosures of Canadian listed firms. The non-significant relationship between these board characteristics and environmental disclosure can be explanied by the fact that the majority of the boards of the sampled firms were mainly dominated by dependent and male members for the time period covered in the study.

For the control variables, the results of the study indicate that there is a positive relationship between the company size and the extent of environmental disclosure (p=0.008). This result is consistent with previous studies, such as Al-Tuwaijri et al. (2004), Brammer and Pavelin (2006), Cormier and Magnan (1999 and 2003), Da Silva Monteiro and Aibar-Guzmán (2010a), Deegan and Gordon (1996), Gao et al. (2005), Huang and Kung (2010), Michelon and Parbonetti (2012), Milanés-Montero and Pérez-Calderón (2011), and Wang et al. (2012). Akbas (2014) and shows that as the company size increases the volume of environmental disclosure also increases. Similarly, the results of the regression analysis show a significant positive relationship between industry membership and the extent of environmental disclosure. This result is also in line with previous research (e.g., Patten 2002; Cho and Patten

Table 5: Results of OLS regression analysis testing the relationship between "the extent of environmental disclosure" and "board characteristics"

Variable	Coefficient	Std. Error	t-Stat.	p-value
Intercept	-5115.135	1458.248	-3.51	0.001
BSIZE	153.1607	51.07824	3.00	0.004
BIND	-17.84956	1102.012	-0.02	0.987
GEND	587.2368	965.6196	0.61	0.546
ACIND	-155.1246	653.8516	-0.24	0.813
SIZE	201.1825	73.55448	2.74	0.008
PROF	-806.1275	502.7215	-1.60	0.115
IND	539.7818	235.8831	2.29	0.026
R-Squared	0.4015			
Adjusted R-Squared	0.3239			
F-statistic	5.17			
p-value of F-Statistic	0.0001			

2007; Brammer and Pavelin 2006; Aerts and Cormier 2009; Cormier and Magnan 2003; Choi 1999; Ho and Taylor 2007; Liu and Anbumozhi 2009; Akbas 2014) and suggests that companies operating in environmentally sensitive industries disclose more environmental information than companies operating in non-environmentally sensitive industries. On the other hand, the coefficient for the profitability variable is not statistically significant, suggesting that there is no relationship between the profitability of the company and the volume of environmental disclosure. This result is in the same vein with the findings of Zeng et al. (2012), Sun et al. (2010), Ahmad et al. (2003), Cho et al. (2010), Brammer and Pavelin (2006), Freedman and Jaggi (2005), Clarkson et al. (2011) and Eng and Mak (2003).

5. CONCLUSION, LIMITATIONS AND FUTURE RESEARCH

This study attempts to merge corporate governance literature and environmental disclosure literature. In this context, the relationship between board characteristics and the extent of environmental disclosures of Turkish non-financial firms listed on the Borsa Istanbul 100 (BIST-100) index at the end of 2011 has been investigated. The dependent variable of the study, the extent of environmental disclosure, is measured by the total number of words that are dedicated to environmental issues in the annual reports of the sampled Turkish companies. On the other hand, in the light of previous literature, four board characteristics are considered those independent variables that may have a relationship with the extent of environmental disclosures of companies, namely, board size, board independence, board gender diversity and audit committee independence. Furthermore, in order to avoid a spurious relationship between dependent and independent variables, company size, profitability and industry membership are included as control variables in the study.

The findings of the study reveal that for board characteristics, only board size has a statistically significant and positive relationship with the extent of environmental disclosure, hence only the first hypothesis of the study is accepted. This result supports the argument that the increased number of members may contribute to the monitoring effectiveness of the board and have a positive impact on the level of environmental disclosure since larger boards lead to a diversity in terms of expertise, including financial and accounting (Larmou and Vafeas 2010; Uwuigbe et al. 2011; Sun et al. 2010; Elzahar and Hussainey 2012).

On the other hand, for the rest of the independent variables (board independence, board gender diversity and audit committee independence), the results of the OLS regression analysis indicate that these board characteristics are unrelated to the extent of environmental disclosure. The low degree of independence and gender diversity on the boards of the sampled firms for the time period covered in the study could provide an explanation for the statistically non-significant relationship between these variables and environmental disclosure.

This study may contribute to the existing literature by providing insights from a developing country and represents the first attempt to solely analyze the relationship between board characteristics and the extent of environmental disclosures of Turkish companies, as far as the author is aware.

As with mos empirical studies, this study has a number of limitations. First, the analyses are conducted with cross-sectional data since the research is based on only one year data. Second, only the annual reports of companies are considered as the source of environmental disclosure. Thus, future research could use longitudinal data in order to investigate the relationship between board characteristics and the volume of environmental disclosures of Turkish companies. Future studies could also investigate this relationship by considering environmental disclosures in other communication channels, such as web sites or separate environmental, social responsibility or sustainability reports. Additionally, the quality of the environmental disclosures of Turkish companies represents an unaddressed research area. Hence, future research could investigate the impacts of company and board characteristics on the quality of environmental disclosure in the context of Turkey.

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COMPETITIVENESS, TRADE WITH THE EU AND LABOUR MARKETS: CHALLENGES FOR THE WESTERN BALKANS

Valerija Botrić, Tanja Broz

Abstract

This paper focuses on the relationship between exporting and the labour markets of the Western Balkan economies within a macroeconomic and microeconomic framework. Within the macroeconomic framework we investigate the Western Balkan countries' evolution of the bilateral intra-industry trade share with European Monetary Union members and compare this with the differences in bilateral unit labour cost dynamics. The microeconomic analysis rests on enterprise-level cross section data collected during the crisis period and investigates whether exporters help to create additional jobs in the region in comparison to entrepreneurs oriented towards national market. The results show that trade patterns between Western Balkan economies and EMU trading partners did not exhibit any significant changes in trend. On the other hand, it seems that during the recession period most Western Balkan economies adjusted their unit labour costs, probably in order to boost competitiveness. Microeconomic analysis revealed that, although there are some positive differences between exporters and non-exporters, exporters do not create additional employment.

JEL classification codes: *F15, F16*

Key words: *intra-industry trade, labour market, Western Balkan countries*

1. INTRODUCTION

Although many policy recommendations advocate the necessity of increasing competitiveness, in particular for the post-transition economies of the Western Balkan region (Sanfey, Milatović and Krešić 2016), the issue of how to measure the competitiveness of an economy is not univocally resolved. Altomonte and Békés (2016) provide a recent overview of the competitiveness issue in the European context, emphasizing that competitiveness rests on the firms' endeavours, while those few with outstanding productivity results become leaders for a sector or entire economy. There are, however, differences between policy-driven competitiveness and within-firm driven competitiveness determinants.

The countries analysed here – Albania, Bosnia and Herzegovina, Croatia, Former Yugoslav Republic of Macedonia[1], Kosovo[2], Montenegro and Serbia – are all post-transition economies that have expressed interest in joining the European Union[3]. Thus, for these

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economies, competitiveness is frequently addressed within the context of overall economic restructuring during transition, catching-up towards the level of development achieved by European market economies and the capabilities of individual firms to compete according to newly introduced market principles. In that context, trade, especially intra-industry trade, has an important role in the process of increasing competitiveness, but also as an indicator of the degree of integration and convergence with the EU.

It has been argued that requirements for increased competitiveness exert negative effects on the demand for labour, as well as create pressure to reduce labour-induced costs. Thus, firms are inclined to accommodate by trying to reduce wages, shed labour or suppress demand. These practices are expected to be more frequent during an economic downturn. However, countries may adopt different policies in dealing with these issues, so a comparative approach might be beneficial in gaining additional insight into these important processes.

In this paper we focus on the relationship between exporting and the labour market in both macroeconomic and microeconomic frameworks. The main aim of the paper is to empirically investigate trade patterns and unit labour cost evolution, in particular in the context of the European Union accession of the Western Balkan economies. To that end, two complementary approaches have been used in order to gain additional insights. Within the macroeconomic framework we investigate the Western Balkan countries' evolution of the bilateral intra-industry trade share with European Monetary Union (EMU) members and compare this with the differences in bilateral unit labour cost dynamics. The analysis covers the 2005-2013 period and is subsequently disaggregated into pre-crisis and crisis periods in order to investigate whether patterns have changed due to the adverse effects that had widespread effects on the world economy. The microeconomic analysis rests on enterprise-level cross section data collected in the period during/aftermath of the crisis and investigates whether exporters help to create additional jobs in the region in comparison to entrepreneurs oriented towards national market.

The structure of the paper is as follows. The next section contains a brief literature review, while section 3 presents the data sources as well as the basic concepts used for the indicators in the empirical analysis. Section 4 is focused on the results of the analysis: section 4.1 discusses results on the macroeconomic level, while section 4.2 presents and discusses the estimates on the individual-firm level. The last section summarizes the main conclusions.

2. BRIEF LITERATURE REVIEW

The Western Balkan countries are small economies that have expressed aspirations to join the European Union. Berglof (2015) calls this "an outside anchor effect of EU accession", which he argues is extremely important for the ongoing reform process, in particular in the Western Balkan countries in comparison to other European transition economies. The integration presents many challenges to a (post)transition economy required to adopt many market regulating mechanisms in a relatively short time (Bjelić 2015). The expected benefits of integration are foreseen, relying on theoretical models, in integration-related trade that is expected to emerge from increased product variety. This will subsequently increase consumers' utility, as well as competitiveness pressures that will induce firms to engage in more efficient behaviour (Helpman and Krugman 1985). On the other hand, it could be foreseen that the internal restructuring due to increased competition in the domestic market will result in the closing down of relatively non-competitive firms (Melitz 2003). We can also foresee a case where the effect will be entirely shifted to the reduction of labour costs, without the closing down of enterprises (Davis and Harrigan 2011).

Trade integration between the EU and the (post) transition economies of the Western Balkans has been less often discussed in the literature than the trade integration of Central and Eastern European countries (Fidrmuc 2000; Bussière, Fidrmuc and Schnatz 2005; Ferto 2007; Grančay, Šumilo and Weinhardt 2015). Most research on trade between Western Balkan countries and the EU concludes that trade, even though it is rising, is still at relatively low levels (Botrić 2012; World Bank 2008) and that the 2008 economic crisis negatively affected their trade integration with the EU (Bjelić, Jaćimović and Tašić 2013).

However, it has been argued that it is not the volume of the trade that is crucial, but the nature of trade patterns that ultimately dictate the overall benefits of integration (Frankel and Rose 1997; Frankel and Rose 1998). In cases where intra-industry trade gains momentum within integration-induced trade increases, the relatively low adjustment costs of production factor reallocation are expected through a smooth adjustment process. Such a scenario is seldom witnessed in integration among economically unequal partners. Since the economies of the Western Balkans are less developed than those of their EMU trading partners, we can envisage that the adjustment will be less smooth. Nevertheless, whether integration induces low adjustment costs in the case of the Western Balkan (post)transition economies is a question that deserves empirical verification.

3. DATA AND METHODOLOGY

As indicated in the introduction, the approach in this paper relies on both (standard) macroeconomic and microeconomic considerations. In the case of the macro-view, we start with the nature of bilateral trading patterns with European Union members. The question is: what is the extent of intra-industry trade, or in other words trade in similar products within the same industry, in the overall trade between partners? The methodology applied relies on a standard approach developed by Abd-el-Rahman (1991), Fontagné and Freudenberg (1997), or Freudenberg and Lemoine (1999), according to the expression that assesses whether there are simultaneous exports and imports (trade overlap) within the same industry:

$$Trade\ overlap = \frac{Min(exports, imports)}{Max(exports, imports)} \quad (1)$$

The expression is evaluated at the disaggregated level of product classification (8-digit Combined Nomenclature and by using the Eurostat's COMEXT database). If it is above a certain threshold, then it is assumed that a significant trade overlap exists and the trade is considered to be two-way (or intra-industry trade). Although studies explore different thresholds for the evaluating expression (1), we apply the relatively standard value of 10 percent to distinguish between intra- and inter-industry trade. We did not want to explore the issue of different thresholds in order to avoid discussion of the implications of the possible sensitivity of the results to this parameter.

The identification of the adjustment mechanism relies also on the precise measurement issues related to the appropriate intra-industry trade dynamics and/or those related to adequate labour market changes. Literature offers a variety of methodological approaches. Brülhart, Elliott and Lindley (2006) suggest measuring on the individual employee level sectoral and occupational distance indicator within the manufacturing sector. Some studies have used industry employment change as an indicator of adjustment cost (Brülhart and Elliott 1998; Greenaway, Hine and Wright 1999), while others suggested using a job turnover indicator (Brülhart 2000; Andersson, Gustafsson and Lundberg 2000). In our macroeconomic approach we relate the evolution of trade patterns to the overall development of unit labour costs. Thus, our aim is not directly related to testing a smooth adjustment hypothesis, but rather to illustrate the evolution of the pattern in Western Balkan economies. Our unit labour cost measure is expressed as the growth of wages in a Western Balkan country relative to the growth of wages in a trading partner, divided by the same change of productivity, or:

$$ulc_{i,j,t} = \frac{\frac{wage_i}{wage_{i_{t-1}}} / \frac{wage_j}{wage_{j_{t-1}}}}{\frac{prod_i}{prod_{i_{t-1}}} / \frac{prod_j}{prod_{j_{t-1}}}} \quad (2)$$

where i refers to the Western Balkan country, and j denotes the trading partner EU country. There are a few possible outcomes from the previous expression that deserve attention:

- If the ulc indicator is higher than one – wage growth in the Western Balkan country is exceeding productivity growth higher than in a comparable European Union country
- If the ulc indicator is equal to one – relative unit labour costs in both countries are moving in the same direction
- If the ulc indicator is lower than one – the relative unit labour cost growth in the Western Balkan country is slower than that of the European Union country, indicating the increased competitiveness of the Western Balkan country.

Since both wages and productivity influence this dynamics, it is important to consider the specific features of Western Balkan economies in that respect. The following non-exhaustive list of potential correlations has to be considered:

- Relative wage changes. Competitiveness pressures can influence employers' decisions to make adjustment in labour costs either by making employment or wage changes. This is particularly important if the strategy to ensure competitiveness relies on the price and not the quality of the product. The analysis in this paper includes an indicator of relative change in the growth rate of EUR-wages in Western Balkan country to the growth rate of EUR-wages in EU trading partner. Since the underlying assumption is that trading on the European market will also involve pricing decisions in EUR, the relevant labour cost decision made by employers includes exchange rates.
- Relative changes in productivity. Employment decisions, particularly in industry, are strongly under the influence of productivity changes. If there are significant productivity improvements due to technological changes, it is very likely that reduction in employment will occur and/or shift in demand towards high-skill labour. This effect can be supported with the relocation of specific phases of production from more to less developed economies. So, within the European Union, the FDI supported relocation of production has been associated with job loss in old member states in comparison to new member states.

Discussing the role of exporting firms for an economy has produced vast volumes of literature (Bernard and Jensen 1995; Doms and Jensen 1998) where it has been established that exporting firms on average have higher productivity and are able to reward their employees with higher wages. The different outcomes of exporting firms have been found also in other, non-US economies (Clerides, Lach and Tybout 1998; Mayer and Ottaviano 2007). The specific focus in this paper is on the ability of exporting firms to create employment.

There are many possible reasons why the answer to this question is not straightforward. The pressures related to integration effects, suppressed or changing demand due to economic crisis, the institutional setup of the domestic labour market and other factors might disrupt the usual job creation process within (exporting) firms. We seek the answer to this question by relying on microeconometric analysis.

The firm-level empirical strategy in the present paper relies on the Business Environment and Enterprise Performance Survey (BEEPS V) conducted by the European Bank for Reconstruction and Development (EBRD) and World Bank data[4]. These data are collected in 30 countries and refer to the time period from 2012 to 2013, but in the empirical analysis we focus only on the data from Western Balkan economies. The difference between the suggested macroeconomic and microeconomic approaches is that our macroeconomic approach enables inspection of the dynamic evolution of trading relationship through time, while our microeconomic approach rests on the cross-section data of the sample during the crisis period. There might be some questions whether the 2012-2013 period can still be dubbed a crisis, since some of the countries in the sample have already recorded positive overall growth rates. Even though the economic crisis started in most Western Balkan countries in 2008 and was most pronounced in 2009, the consequences were still present years after 2008. Economic instability in particular intensified in 2012 due to the sovereign debt crisis in the EU, which was manifested in markedly increased credit default swaps. Hence we consider the period of collecting the data for BEEPS V a crisis period. The main research question that we want to address with the microeconomic segment of the analysis is to reveal whether exporting companies are more likely to generate additional employment than non-exporting companies. To that end, we rely on propensity score matching methods and analyse whether exporters and non-exporters that share a number of similar characteristics have different outcomes in times of employment growth.

Propensity score matching relies on the probability of participation, in our case participation in export activities, given the set of characteristics X (Blundell and Costa Dias, 2008). We can define:

$$P(X) = P(d = 1 \mid X) \tag{3}$$

where $P(X)$ is the probability of participation, which is usually called the propensity score, and X is the set of analysed characteristics. In order to estimate the average treatment effect of the treated group, we used nearest neighbour matching and kernel matching.

4. RESULTS OF THE MACROECONOMIC AND MICROECONOMIC ANALYSES

4.1. Results of the macroeconomic analysis: trade patterns - general dynamics and European Union accession prospects

The Eurostat data on the exports of accession countries to the European Union in the period 2006-2015 reveals a distinctive pattern, with most countries experiencing a dip in the year 2009 (Figure 1). A similar pattern occurs when the data of overall exports are considered. However, even though the European Union appears to be the preferred export destination for most of the countries, the data presented in Figure 1 seems to show that neither Montenegro nor Kosovo have directed their exports toward European markets,

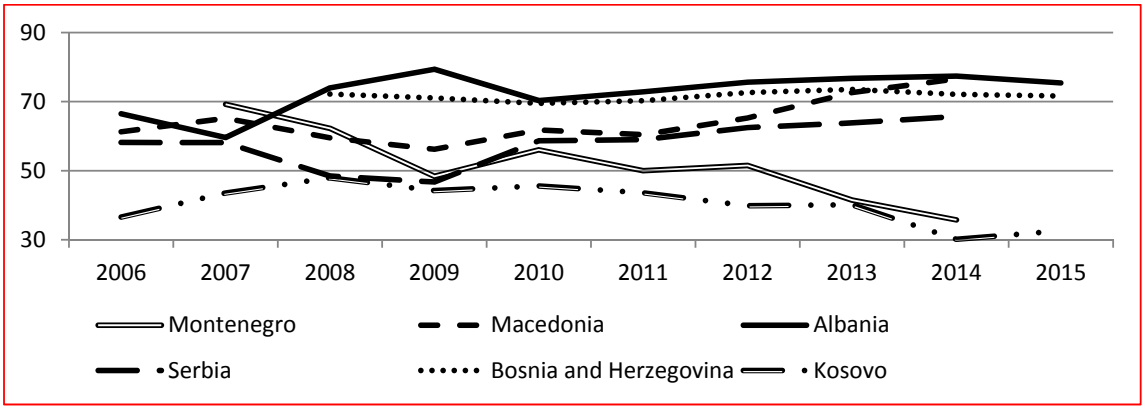
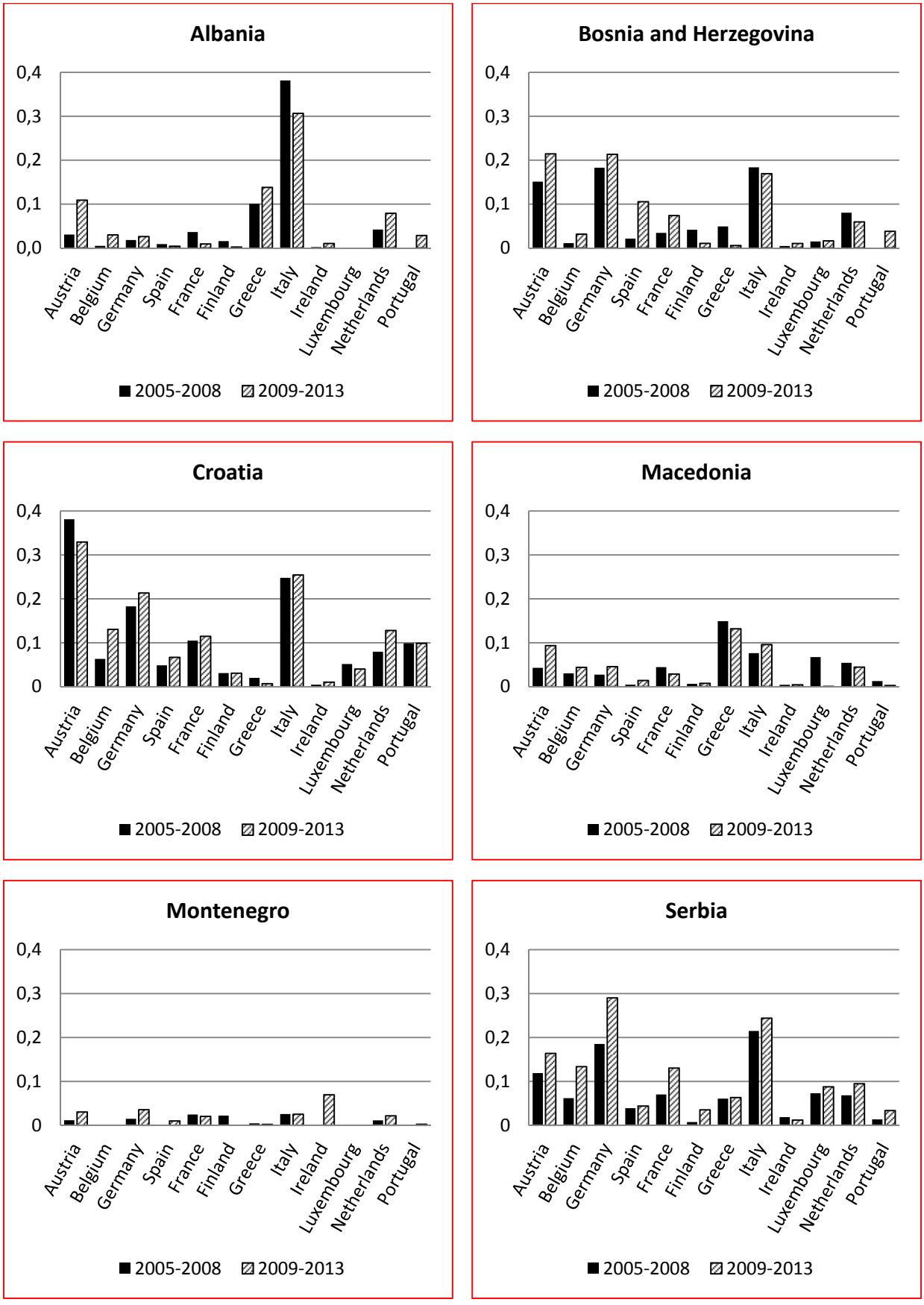


Figure 1: Share of exports to EU-28 in total exports, in percent

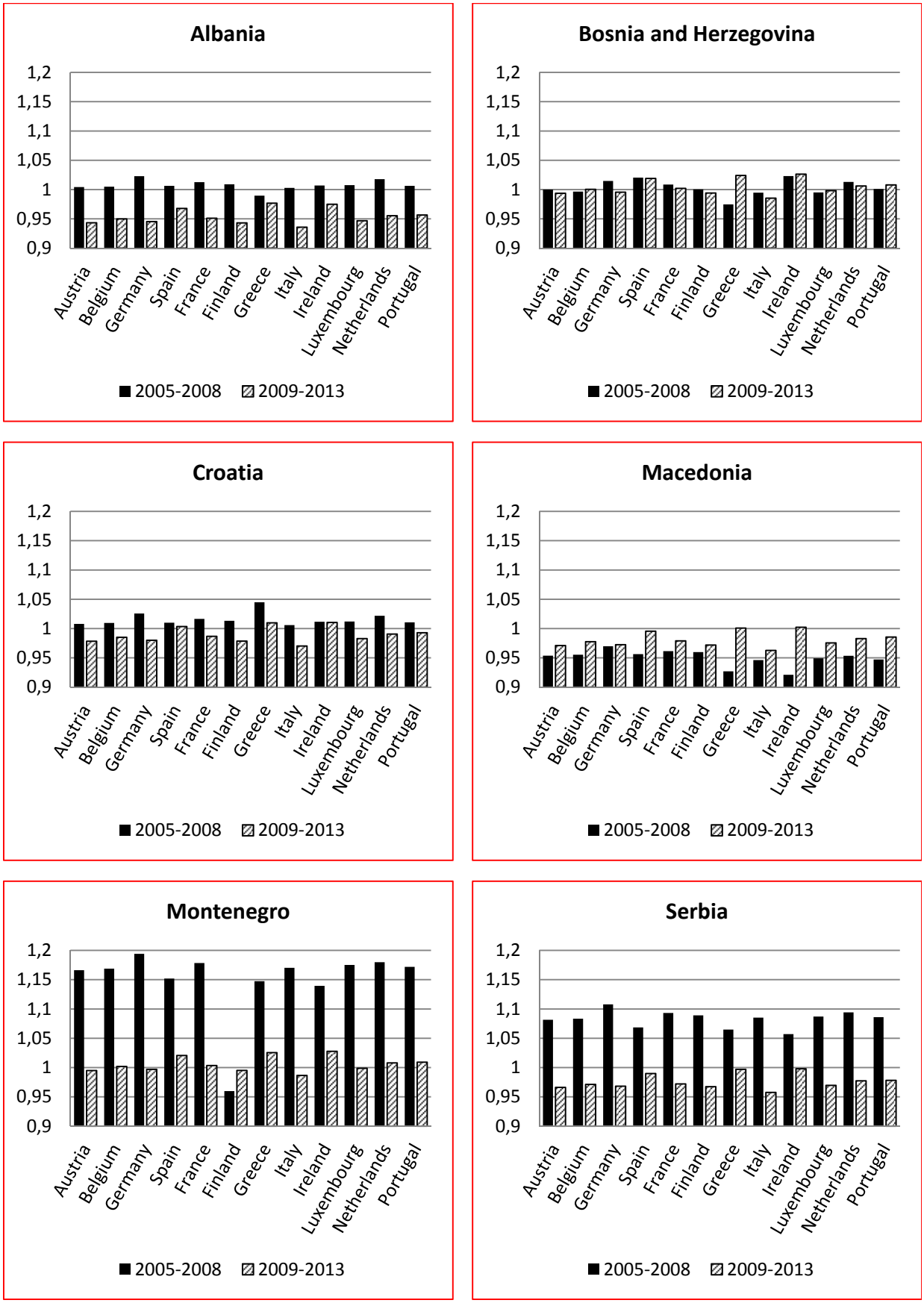
Source: Eurostat.

Figure 2: Share of intra-industry trade in total trade between partners



Source: authors' calculations based on COMEXT data.

Figure 3: Unit labour cost changes between partners



Source: authors' calculations based on WIIW and Eurostat data.

despite the fact that demand has regained its strength after the crisis, while Macedonia and Serbia increased the orientation of their exports towards the European Union.

In order to investigate the issue of the EU as the preferred export destination for Western Balkan countries, we focus on bilateral intra-industry trade patterns between each individual Western Balkan country and an EMU member. The reason that we focus only on the EMU members is to postpone the discussion on exchange rate differentials, which could be important determinants of trade dynamics. We focus on two aspects. The first is the share of intra-industry trade in the overall trade, which enables a comparative analysis between different Western Balkan countries with respect to their bilateral trading partners. The second aspect is related to the differences in the share of intra-industry trade before and after the crisis. Details are presented in Figure 2.

The data shows that Montenegro, followed by Macedonia, has the lowest shares of intra-industry trade with most of the analysed EU trading partners. Albania has a very distinctive relationship with one trading partner – Italy. For Croatia, Bosnia and Herzegovina and Serbia, the highest share of intra-industry trade is achieved with Austria, Germany and Italy, which are traditionally their important trading partners. However, in all of the cases the share of intra-industry trade is lower than 50 percent, implying that inter-industry trade dominates the overall structure of trade. Thus, the trade patterns between Western Balkan countries and their EU bilateral partners resemble a North-South trading pattern, in which it is assumed that the less developed country exports labour-intensive products and imports capital-intensive products.

Concerning the differences in trade patterns in the pre-crisis and crisis periods, there are no significant differences between the two periods between the analysed countries, but differences entirely depend on the relative economic conditions in the trading partners. For example, the share of intra-industry trade between Austria and Croatia, the only country in the sample that had been in recession until the end of the sample period, has decreased in the crisis period, while it has increased between Austria and all other Western Balkan countries.

If Western Balkan countries are mostly exporting labour intensive products into the European Union, then their relative competitiveness should be correlated with the evolution of unit labour costs. Thus, we investigate whether there is a correlation between unit labour cost differentials between bilateral trading partners and the intra-industry trade. To that purpose, we first present the unit labour costs calculated as relative wages divided by the relative productivity growth according to expression 2. If the indicator is above 1, then the unit labour cost in a Western Balkan country is increasing more than in their bilateral trading partner, which adversely affects their competitiveness. As in the previous case, we are again interested in the differences between the pre-crisis and crisis periods.

The data clearly show that there are significant changes in unit labour costs between partners in the pre-crisis and crisis periods. Most Western Balkan countries have seriously adjusted their relative unit labour cost growth in the crisis period, in particular those that had higher unit labour cost growth than their EU trading partners in the pre-crisis period. There are two exceptions related to countries that had less or similar unit labour costs growth with their trading partners prior to the crisis – Bosnia and Herzegovina and Macedonia did not adjust their unit labour cost growth in the crisis period downwards, and for Macedonia we can even notice a relative increase. The question is whether there is a link at the overall economy level between trade patterns and changes in unit labour costs. The results of the correlation exercise are presented in the following table.

Table 1: Correlation between the intra-industry trade and unit labour costs

	Pre-crisis	Crisis
Albania	-29,69	-27,27
Bosnia and Herzegovina	-4,76	-52,18
Croatia	-30,59	-67,56
Macedonia	-36,61	-9,84
Montenegro	-26,99	20,45
Serbia	45,05	-66,53

Source: authors' calculations based COMEXT, WIIW and Eurostat data.

Negative correlation implies that if the relative unit labour cost in a Western Balkan country is increasing more than in a trading partner, intra-industry trade with the European Union trading partner is smaller. For most cases the correlation is small, implying that there is no direct link between trading patterns and unit labour cost adjustments. The results in the table show that only in two countries in the crisis period could the correlation be considered relatively strong – Croatia and Serbia. This implies that for these two countries, the higher their relative unit labour cost towards their trading partners, the lower the share of intra-industry trade they have with their trading

partners. This would suggest that for these countries increased competitiveness pressures can exert negative effects on their labour markets and vice versa.

If we compare the pre-crisis and crisis periods, we can notice important changes. For example, in the case of Croatia and Bosnia and Herzegovina, previously described mechanisms are more pronounced in the crisis period. The reverse is the case for Macedonia.

This macroeconomic overview indicates that trade patterns between Western Balkan economies and EMU trading partners during the accession period did not exhibit any significant changes in trend. The nature of trade resembled a North-South trading relationship, indicating the relative disadvantage of Western Balkan economies. It does seem that during the recession period most Western Balkan economies adjusted their unit labour costs, probably in order to boost competitiveness. Yet this again indicates that they are trading on the lower end of the market, trying to compete with low-cost labour products. To what end is this plausible long-run exporting strategy, remains to be seen.

4.2. Results of the microeconomic analysis: exporters and the creation of additional jobs in Western Balkans

All Western Balkan countries are characterized by high unemployment rates and sluggish labour markets (Mojsoska-Blazevski 2012). The question addressed in this segment of the paper is whether exporters are able to create additional job growth in comparison to non-exporters. In order to address this issue, we use a BEEPS Survey that enables comparative firm-level data analysis for the countries in the sample. Descriptive statistics for the sample used is presented in Table 2 (the names of the variables as well as their description are presented in Appendix Table A2).

Descriptive data shows that exporting firms have on average increased the number of employees in the previous three years to a greater extent than non-exporting firms[5]. However, there are differences in the sample structure that do not allow for a straightforward comparison of these two subsamples. For example, the share of large and medium-sized firms is higher in the case of exporters than in non-exporting companies. This indicates that there might be some preconditions for firms to reach a threshold size before they start exporting. However, this could also be period-specific. Since the survey was conducted during the crisis period (or the sample reflects the effects of the last crisis), it could be argued that the crisis had more adverse effects on the probability for micro and small exporting firms to survive. In this context, a study by Van Beverent et al. (2016) and OECD (2009) show that smaller firms are more often the victims of prolonged economic crisis than larger firms.

Table 2: Exporters and non-exporters characteristics in Western Balkan countries

Variable	Non-exporters	Exporters
Empldelta	1.05	1.76
Micro	0.04	0.01
Small	0.65	0.43
Medium	0.24	0.39
Large	0.07	0.17
Private	0.90	0.83
State	0.00	0.02
Manufacture	0.26	0.57
Ino	0.51	0.72
Growth	21.27	1155.75
market_inter	0.03	0.32
foreign_mat	41.23	51.46
capacity_ut	62.57	67.94
manager_exper	16.73	18.85
University_share	2.24	1.30
Product_work	0.67	0.73
skill_product	0.80	0.83
training_prod	59.02	59.72
training_nonpr	38.70	43.18
Certifikat	0.25	0.43
Technology	0.15	0.25
Specialization	72.82	73
Positive_exp	0.45	0.56

Source: authors' calculations based on BEEPS.

Another striking difference is in the variable that depicts the growth in sales in the three-year period. It seems that at least some of the exporting firms recorded unusually high growth in sales, resulting in a high average value for the subsample. This might also be a consequence of the data collection method itself. Yet instead of trying to identify outliers, a matching methodology has been applied in the further analysis to gain insights into the different outcomes between exporting and non-exporting firms.

In order to compare similar firms, we perform propensity score matching and analyse average employment growth for comparable exporting and non-exporting firms. This will enable us to see whether the observed differences in employment growth between exporters and statistically comparable non-exporters are really present. All of the covariates presented in

Table 2 were considered, but only those satisfying balancing property remained in the underlying probit model (see Appendix Table A1). It is interesting to notice our pooled cross section estimates suggest that a firm is more likely to be an exporter if it is a large enterprise oriented towards an international market for their main product and with a manager having experience in the same economic activity the firm is registered in. Other predictors were not found to be significant. The only exception is a country dummy variable for Macedonia, where it seems that enterprises from that country are on average less likely to be exporters.

The average treatment effect of the treated (in our case the difference in the outcomes of employment growth between exporters and non-exporters) has been estimated using two approaches – nearest neighbour matching and kernel matching (using an Epanechnikov kernel function[6]) method. The results are presented in the following table.

Table 3: Average treatment effect of the treated (ATT) estimates: differences in employment growth between exporters and non-exporters

Estimation method	Nearest neighbour	Kernel matching
Estimated ATT	0.19	0.18
Estimated standard error	0.17	0.17

Source: authors' estimates based on BEEPS.

The results in the previous table reveal that, regardless of the method applied, the exporters did obtain higher employment growth. However, the difference was not significant, once we compare similar types of firms according to various characteristics.

Hence the initial impression that exporters do create additional employment actually was not confirmed by the empirical analysis. We might speculate that this is due to the crisis. However, in order to corroborate this assumption, additional empirical analysis is required that would inspect results both in the boom and in bust phases of the cycle. This is left for future research.

5. CONCLUSIONS

The aim of this paper was to contribute to the vigorous discussion on the intertwining areas of EU integration and competitiveness of the Western Balkan economies. This is a complex issue with manifold manifestations. The focus in the present paper is on trade patterns and labour market outcomes.

Our first set of findings suggest that intra-industry trade patterns between Western Balkan and EU economies reveal the unequal position of these two groups of countries. This pattern has not changed significantly if we compare the pre-crisis and crisis periods. In other words, the relative bilateral position of countries reveals not only the previous bilateral relationship but also the differences in the adverse effects of the latest economic crisis.

Due to this North-South trade relationship it is interesting to investigate the standard price (cost) competitiveness argument. Our bilateral comparisons of unit labour costs growth indicated that: countries differ in their relative competitiveness (some have declining, while others increasing competitiveness); countries that had adverse competitiveness trends before the crisis significantly changed their relative unit labour costs during the crisis; and each Western Balkan country developed a unique relationship with each EU country.

Theoretical assumptions suggest that increases in cost competitiveness should enable export increases. However, this requires ceteris paribus. Due to the turbulent period this paper is trying to encompass and bearing in mind the data constraints, we did not inspect this relationship in detail, but left this important discussion for future research[7].

Instead, in the second empirical exercise we explored whether those firms that were able to export (not only towards the European Union) also created additional employment. Our results suggest that, although there are some positive differences, they are not statistically significant when we consider similar firms according to multiple criteria. This could be attributed to the crisis period and to the fact that all firms (both exporting and non-exporting) were faced with an adverse business climate. Since all of the analyzed countries are small open economies, the firms operating solely on domestic markets are also under the influence of competitive pressure from other countries.

The general conclusion is that there seems to be an adverse relationship between trade and labour market outcomes in the Western Balkan economies. Firms aim to alleviate the competitiveness pressures by reducing labour cost. At the same time, the economies trade at the lower end of the market, where low labour costs are a precondition for competitiveness. From a policy perspective, this does not portray a sustainable development path leading to the successful integration of Western Balkan economies. Naturally, we only briefly focused on specific segments of the process, and a sudden positive asymmetric shock could create an additional spur for this group of post-transition economies.

Appendix

Table A1: Predictors for a firm to be an exporter

	Estimated Coefficients (standard errors)
Constant	-1.53 (0.94)
Micro	0.93 (0.96)
Small	-0.17 (0.22)
Large	0.68** (0.27)
private	-0.04 (0.22)
Ino	0.29 (0.23)
market_inter	1.27*** (0.25)
foreign_mat	0.00 (0.00)
capacity_ut	0.00 (0.00)
manager_exper	0.02 ** (0.01)
University_share	-0.00 (0.07)
Product_work	0.68 (0.49)
skill_product	-0.23 (0.33)
training_prod	0.00 (0.00)
training_nonpr	0.00 (0.00)
certifikat	0.32 (0.20)
technology	-0.10 (0.20)
specialization	-0.01 (0.00)
positive_exp	0.16 (0.18)
manufacture	0.07 (0.66)
albania	-0.67 (0.46)
bih	0.02 (0.28)
kosovo	-0.36 (0.32)
monte	-0.96 (0.59)
fyrm	-0.55* (0.29)
serbia	-0.04 (0.31)
Diagnostics	
Number of obs	280
LR chi2 (25)	96.72
Pseudo R2	0.25

Source: authors' estimates based on BEEPS data.

Table A2: Definition of variables and data sources

Variable	Description	Source
exporter	= 1, if firm has positive share of exports in total sales	BEEPS
empldelta	= number of workers last fiscal year / number of workers 3 years ago	
micro	= 1, if this is a micro firm (less than 5 employees)	
small	= 1, if this is a small firm (more than 5, less than 19 employees)	
medium	= 1, if this is a medium-sized firm (more than 19, less than 100 employees)	
large	= 1, if this is a large firm (more than 100 employees)	
private	= 1, if firm was established from time of start-up as private	
state	= 1, if firm was established as state-owned	
manufacture	= 1, if a firm's main activity is within manufacturing sector	
Inovate	= 1, if firm had innovation output or R&D	
growth	= sales last fiscal year / sales 3 years ago	
market_inter	= 1, if the main market for firm's products is international	
foreign_mat	= share of foreign material in production input	
capacity_ut	= capacity utilization	
manager_exper	= number of years manager is working in this specific sector	
University_share	= share of employees with university degree in total	
Product_work	= share of production workers in total	
skill_product	= share of skilled workers in production workers	
training_prod	= share of permanent production workers who obtained training	
training_nonpr	= share of permanent non-production workers who obtained training	
certifikat	= 1, if firm has international certificate	
technology	= 1, if firm utilizes licenced technology	
specialization	= share of main product in total sales	
Positive_exp	= 1, if a firm expects its sales to increase next fiscal year	
Exports, imports	= value and quantity of bilateral exports, imports	COMEXT
wages	= wages in EUR	WIIW and Eurostat
productivity	= gross value added / total number of employees	WIIW and Eurostat

Endnotes

1 Macedonia in the rest of the paper.

2 Instead of Kosovo under UNSCR 1244/99 we apply simple Kosovo throughout the paper, to enhance the readability.

3 It should be noted that since the mid 2013 Croatia became a member of the EU.

4 Detailed information on BEEPS V is available on http://ebrd-beeps.com/

5 The data on the average increase in the number of employees refers to three years prior to 2012/2013, which are the years when the BEEPS survey has been conducted.

6 This has been obtained by following psmatch2 procedure in STATA 13.

7 Another interesting point will deserve attention in the future. Croatia has joined the EU in July 2013 and consequences of this event have not been investigated in this research. This might be an interesting point for future research in order to see if accession to the EU has changed the observed patterns and conclusions.

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MACROECONOMIC DETERMINANTS OF ECONOMIC GROWTH: A REVIEW OF INTERNATIONAL LITERATURE

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Abstract

The paper conducts a qualitative narrative appraisal of the existing empirical literature on the key macroeconomic determinants of economic growth in developing and developed countries. Much as other empirical studies have investigated the determinants of economic growth using various econometric methods, the majority of these studies have not distinguished what drives or hinders economic growth in developing or developed countries. The study finds that the determinants of economic growth are different when this distinction is used. It reveals that in developing countries the key macroeconomic determinants of economic growth include foreign aid, foreign direct investment, fiscal policy, investment, trade, human capital development, demographics, monetary policy, natural resources, reforms and geographic, regional, political and financial factors. In developed countries, the study reveals that the key macroeconomic determinants that are associated with economic growth include physical capital, fiscal policy, human capital, trade, demographics, monetary policy and financial and technological factors.

Keywords: *Economic Growth; Macroeconomic Determinants; Developing Countries; Developed Countries*

JEL Classification: *E13, O11, O47*

1. INTRODUCTION

The investigation into the factors that increase or hinder economic growth has been one of the central tenets amongst theoretical and empirical growth researchers, but little consensus has been reached to date. Within the framework of economic growth theory, there have been two important novelties that have spearheaded much of the existing discussion on economic growth. These include neoclassical growth theory and endogenous growth theories. Their main focus has been on the importance of state factors such as the accumulation of physical capital and human capital development (see, among others, Solow 1956; Romer 1986; Lucas 1988). However, there have been other equally important contributions to economic growth literature that focus either on the impact of efficiency factors on economic growth (see Easterly and Wetzel 1989; Barro 1990; World Bank 1990; Barro and Sala-i-Martin 1992, among others) or on the importance of fundamental sources of economic growth, such as institutions and legal, demographic, geographic, socioeconomic and political factors (see Barro 1999, 2003; Sachs and Warner 1997; Burnside

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and Dollar 2000; Radelet, Sachs, and Whang-Lee 2001, among others).

The neoclassical Solow-Swan (1956) economic growth theory, also known as the exogenous growth model, advocates for the accumulation of physical capital as an important driver of economic growth in the short run, while technological advancement is the key determinant of economic growth in the long run. An important extension of the neoclassical growth model was the inclusion of human capital stock as one of the key factors driving economic growth to complement physical capital accumulation (Mankiw, Romer, and Weil 1992; Islam 1995). In terms of endogenous growth theorists, their major contribution is based on the inclusion of productivity factors such as learning-by-doing and useful technological knowledge (research and development) as important drivers of economic growth (Romer 1986, 1990; Lucas 1988; Grossman and Helpman 1991; Aghion and Howitt 1992; Stokey 1995).

Much as there is consensus that state factors such as the accumulation of physical capital (investment) and human capital stock, on the one hand, and productivity factors (technological growth) on the other, are important macroeconomic determinants of economic growth in almost any country (Solow 1956; Frankel 1962; Romer 1986, 1990; Lucas 1988; Mankiw, Romer, and Weil 1992; Aghion and Howitt 1991; Grossman and Helpman 1992), there are other proponents who postulate that factors affecting the efficiency of savings and investment are equally important determinants in influencing economic growth (Easterly and Wetzel 1989; World Bank 1990; Fischer 1992). These efficiency factors became prominent in the 1990s, with three key outcomes being targeted: stability of the macro-economic environment; effectiveness of the institutional framework of an economy related to political and economic governance, incentive structures and social infrastructure; and the setting up of the right price mechanism and necessary regulatory environment to clear markets (World Bank 1990; Snowdon and Vane 2005).

As argued by Fischer (1992), the main reason why macroeconomic stability matters to economic growth is the uncertainty it creates with respect to the prediction of the future value of economic variables. One source is policy-induced uncertainty, which affects the efficiency of the price mechanism. If, for instance, the expectation is that inflation, government spending, real exchange rates, real interest rates and population growth will rise, these may have a negative influence on the future rate of economic growth. The second source is temporal uncertainty, where investors hold on to their investments until the macroeconomic environment has stabilized; if not controlled this may lead to capital flight (World Bank 1990; Barro 1990; Pindyck 1988; Pindyck and Somalino 1993).

Barro and Sala-i-Martin (1992), for example, have modelled the significance of government spending on economic growth and found that high government spending has a negative impact on economic growth. In another spectrum, efficiency factors such as inflation (Mundell 1963; Tobin 1965; Sidrauski 1967; Stockman 1981; Fischer 1983; Bruno and Easterly 1998), real exchange rate stability (Balassa 1964; Samuelson 1964; Dollar 1992; Rodrik 2008), foreign aid (Chenery and Strout 1966; Riddell 1987; Burnside and Dollar 2000), financial development or repression (McKinnon 1973; Shaw 1973), international trade (Dollar 1992; Knight, Loayza, and Villanueva 1993) and population growth (Solow 1956; Boserup 1996) have dominated much of the research, with little consensus being reached on their association with economic growth.

Inasmuch as a number of empirical studies have been conducted in order to identify the key determinants of economic growth, many growth economists have resorted to selecting as many determinants as possible, as long as there is enough pooled-country data and degrees of freedom to handle the analysis (Sala-i-Martin, Doppelhofer, and Miller 2004; Ciccone and Jarocinski 2010). This approach has been supported by studies that argue that the robustness of determinants can only be guaranteed by the inclusion of more determinants of economic growth (Sala-i-Martin, Doppelhofer, and Miller 2004; Bayraktar 2006). On the other hand, this approach provides a framework showing evidence that certain factors may behave in a dissimilar manner, which may be misleading to policy makers focusing on country-specific economic strategies.

Much as pooled data may provide a convenient analytical framework to determine the common determinants of economic growth, many governments do not know the key drivers of economic growth specific to their economies. The new literature on empirical growth research stresses the importance of how country-specific development plans and economic reforms can cause different equilibria, or time paths, for per capita income growth (Azariadis and Drazen 1990; Durlauf and Johnson 1995). Today it is still not clear as to which factors are the principal drivers of economic growth within and among countries.

The paper, therefore, aims to qualitatively review the existing empirical literature on the determinants of economic growth with a special focus on whether there is consensus amongst growth economists in terms of the key macroeconomic determinants that

either drive or hinder economic growth. The paper differs fundamentally from previous studies, as it focuses on distinguishing the key macroeconomic determinants of economic growth that are relevant for developing and developed countries. This study is divided into six sections. Section 1 introduces the subject matter. Section 2 reviews the empirical evidence on the key macroeconomic determinants of economic growth in developing countries. Section 3 extends the analysis by investigating the key macroeconomic determinants of economic growth in developed countries. Section 4 focuses on the key macroeconomic determinants of economic growth specifically for South-Eastern and Central European Countries. Section 5 summarises the discussion. Lastly, section 6 concludes the research.

2. *DETERMINANTS OF ECONOMIC GROWTH IN DEVELOPING COUNTRIES*

In this section, we examine fourteen (14) empirical growth studies that focused their analysis on identifying the key macroeconomic determinants of economic growth in developing countries. The studies include Dollar (1992), Fischer (1992), Knight, Loayza, and Villanueva (1993), Most and Vann de Berg (1996), Easterly and Levine (1997), Hamilton and Monteagudo (1998), Barro (1999, 2003), Burnside and Dollar (2000), Chen and Feng (2000), Radelet, Sachs, and Whang-Lee (2001), Bhaskara-Rao and Hassan (2011), Chang and Mendy (2012), and Anyanwu (2014). The econometric methodologies adopted in these studies include cross-country, panel and single-country regressions.

Dollar (1992) investigated the sources of economic growth in 95 developing countries, covering the period 1976-1985. Using a cross-sectional regression analysis, the study results showed that real exchange rate variability and the index of real exchange rate distortion were negatively and significantly associated with long-run economic growth: the investment rate was positively and significantly associated with economic growth. In addition, the study found that the higher the degree of exchange rate instability, the lower the degree of technological diffusion from advanced economies (Dollar 1992). The study, therefore, concluded that outward-orientation plays an important role in accelerating technological development in an economy: this is achieved through a low degree of protection and a stable real exchange rate regime.

Fischer (1992) investigated macroeconomic stability and economic growth in Sub-Saharan Africa (SSA) and Latin America and the Caribbean (LAC) countries during the period 1970-1985. Using a cross-section regression, the study results revealed that human capital, investment, and budget surplus were positively and significantly associated with economic growth, while initial real GDP, inflation and dummy variables for SSA and LAC were negatively and significantly associated with economic growth. He therefore concluded that a reasonable level of macroeconomic stability is necessary for sustained economic growth.

Knight, Loayza, and Villanueva (1993) extended the Mankiw, Romer, and Weil (1992) model by examining the relationship between investment, human capital, public investment and outward-oriented trade policies on economic growth in 98 countries. Using a panel regression method and two sub-samples of 81 countries and 59 developing countries, their study showed a strong and positive correlation between physical capital, human capital and economic growth in both sub-samples. The results also showed public investment to be positively and significantly associated with economic growth in developing countries. The weighted tariffs as a measure of trade openness and population growth were both negatively and significantly associated with economic growth in both sub-samples (Knight, Loayza, and Villanueva 1993). The study concluded that physical capital, human capital, public investment, openness to trade, and population growth were all important determinants of economic growth.

Most and Vann de Berg (1996) investigated the determinants of economic growth in eleven Sub-Saharan Africa countries using country-specific time series growth models. The study results revealed mixed results. Foreign aid was found to be negatively and significantly associated with economic growth in Togo, Ivory Coast, Nigeria, Zambia, Rwanda, and Botswana: on the other hand it was positively and significantly associated with economic growth in Niger, Senegal and Mauritius. Domestic savings were found to be positively and significantly associated with economic growth in Togo, Senegal, Ivory Coast, Nigeria, Cameroon, and Kenya, but negatively and significantly associated with economic growth in Mauritius and Zambia. Foreign Direct Investment was positively and significantly associated with economic growth in Ivory Coast, Niger, Kenya and Togo, but negatively and significantly associated with economic growth in Mauritius and Rwanda. Finally, population growth was only found to be negatively and significantly associated with economic growth in Senegal, Mauritius and Niger.

Easterly and Levine (1997), using an empirical cross-sectional growth equation, investigated the determinants of economic growth in Sub-Saharan Africa and Latin America and Caribbean Countries during

the periods 1960, 1970 and 1980. The study found the logs of schooling, financial depth, a measure of telephones per worker, and fiscal surplus were positively and significantly associated with economic growth, while political assassinations and black market premiums were negatively and significantly associated with economic growth. All dummy variables were negative and significantly associated with economic growth, showing that Sub-Saharan African countries and Latin America and Caribbean countries experienced slow economic growth. Furthermore, the study results revealed that Africa's poor growth was associated with low schooling, political instability, underdeveloped financial systems, distorted foreign exchange markets, high government deficits, and insufficient infrastructure. The study concluded that budget deficits, black market premiums, financial depth, political stability, infrastructure, and human capital development accounted for a substantial amount of cross-country variation in economic growth rates (Easterly and Levine 1997).

Hamilton and Monteagudo (1998), using least-squares regression, re-examined the Mankiw, Romer, and Weil (1992) empirical model, using data covering the period 1960-1985. The variables included were changes in the rate of physical investment, the average percentage of the working age population that was in secondary school, and the average annual rate of growth of the working age population for that country between 1960 and 1970. They found that changes in output growth were positively and significantly associated with changes in the rate of physical investment. However, changes in human capital development were negatively and significantly associated with economic growth. They also found that the coefficient on the change in population growth was not statistically significant (Hamilton and Monteagudo, 1998, p. 500).

Barro (1999) investigated the determinants of economic growth using an extended neoclassical growth model for 100 countries and covering the period 1960-1995. Based on a panel regression and three stage least squares method, the study results showed that investment share, growth rate of terms of trade, years of schooling, rule of law index, democracy index and international openness were positively and significantly associated with economic growth, while government consumption, total fertility rate, and inflation were negatively and significantly associated with economic growth.

Burnside and Dollar (2000) investigated the relationship between foreign aid, policies and economic growth in 56 developing countries comprising 16 middle-income and 40 low-income countries. Using a two-stage least squares (2SLS) method, the results showed that foreign aid was positively and significantly associated with economic growth when it entered the growth regression as an interactive term with policy: however, foreign aid was found to have no influence on economic growth without this term in the countries studied. On the other hand, the results showed that budget surpluses, institutional quality, trade openness and countries situated in East Asia were positively and significantly associated with economic growth. In addition, the results revealed that political assassinations, inflation and countries located in SSA were negatively and significantly associated with economic growth.

Chen and Feng (2000) investigated the relationship between trade (exports plus imports) as a share of real GDP, state-owned enterprises, inflation, investment, higher education enrolment and economic growth in China. Using provincial panel data, the study found trade and university enrolment to be positively and significantly associated with the annual average rate of per capita GDP. Inflation and state-owned enterprises, on the other hand, were negatively and significantly associated with economic growth. Their study concluded, therefore, that private enterprises, foreign trade and education were important determinants of China's long-run economic growth.

Covering the period 1965-1990, Radelet, Sachs, and Whang-Lee (2001) investigated the determinants of economic growth in 18 Asian countries. Using an extended neoclassical cross-country growth model, the study results revealed that initial education attainment, coastline distance to land area, government savings, trade openness, quality of institutions, life expectancy and the growth of the working age population were positively and significantly associated with economic growth: on the other hand initial output per worker, natural resource abundance, landlockedness, and location in the tropics were negatively and significantly associated with economic growth.

In another study, Barro (2003) investigated the determinants of economic growth in a panel of 87 countries that covered both developed and developing countries during the period 1965-1995. The study results were based on three cross-section growth regressions that covered the periods 1965-1975; 1975-1985; and 1985-1995. The results revealed that average years of school attainment, investment, and the rule of law, democracy, trade openness, and terms of trade were all positively and significantly associated with economic growth, while initial level of per capita GDP, life expectancy, fertility rate, government consumption, inflation rate and landlockedness were negatively and significantly associated with economic growth.

Bhaskara-Rao and Hassan (2011) investigated the determinants of long-run economic growth in Bangladesh covering the period 1970-2007. Based on an Autoregressive Distributed Lag method, the study results revealed that the implementation of reforms since the 1980s, FDI, money supply, and trade openness were positively and significantly associated with economic growth, while government expenditure and inflation were negatively and significantly associated with economic growth.

Chang and Mendy (2012) investigated the empirical relationship between openness and economic growth in 36 African countries during the period 1980-2009. Using a panel fixed effects regression model, the study results revealed that foreign aid, exports, imports, labour employed and trade openness were positively and significantly associated with economic growth: however, foreign direct investment, domestic investment, and gross national savings were negatively and significantly associated with economic growth. The study also found that foreign aid exhibited mixed results when disaggregated by region. In the Middle and North Africa regions, foreign aid was positively and significantly associated with economic growth; while in the West and East Africa regions foreign aid was negatively and significantly associated with economic growth.

Finally, Anyanwu (2014) examined the factors affecting economic growth in Africa and China using an empirical growth model. Applying cross-country panel data for African countries covering the period 1996-2010 together with time series data for the 1984-2010 period for China, the study results showed that for Africa higher domestic investment, net official aid, secondary school enrolment, metal price index, government effectiveness (governance) and urban population were positively and significantly associated with economic growth. In China, using a subset of the regressors, the study results showed that domestic investment and trade openness were positively and significantly associated with economic growth, while official development aid, population growth, inflation, credit to the private sector, agricultural material price, and oil price indices were negatively and significantly associated with economic growth.

3. *DETERMINANTS OF ECONOMIC GROWTH IN DEVELOPED COUNTRIES*

In this section, the key macroeconomic determinants for developed economies are examined in seven empirical growth studies. These include Bleaney, Gemmell, and Kneller (2001), Freire-Seren (2002), Anaman (2004), Acikgoz and Mert (2005), Bayraktar (2006), Asheghian (2009) and Checherita-Westphal and Rother (2012). The methodological approach adopted in these studies was also mixed and included cross-country, panel and single-country regressions.

Bleaney, Gemmell, and Kneller (2001) used annual data from 22 developed countries covering the period 1970-1995, to investigate the relationship between fiscal policies and long-run economic growth. The study results showed that productive government expenditure had a significant and positive association with the long-run economic growth rate: distortionary taxes, on the other hand, had a negative and significant association with the long-run economic growth rate (Bleaney, Gemmell, and Kneller 2001). The study concluded that productive fiscal expenditures increased economic growth, while distortionary fiscal policies reduced economic growth.

Freire-Seren (2002) investigated the relationship between human capital accumulation and economic growth in Spanish regions using an augmented neoclassical growth model covering the period 1964-1991. The study found both human capital development and investment to be positively and significantly associated with economic growth.

Anaman (2004), covering the period 1971-2001, investigated the determinants of economic growth in Brunei Darussalam using an augmented neoclassical growth model. The results showed that exports and investment share were positively and significantly associated with real GDP growth. The study results also showed that government size exhibits threshold effects, with moderate government size being positively and significantly associated with economic growth, while higher government size was negatively and significantly associated with economic growth.

Acikgoz and Mert (2014), using an autoregressive distributed lag and Fully Modified Ordinary Least Squares method, investigated the relationship between investment and real GDP per capita in three Asian countries – Hong Kong, the Republic of Korea, and Taiwan. Using time series data covering the period 1951-2007 for Taiwan, 1953-2007 for Republic of Korea, and 1960-2007 for Hong Kong, the study results showed that in the short run, the investment share was positively and significantly associated with economic growth. In addition, it was positively and significantly related to the level of real GDP per capita in the long run. These findings proved consistent in all three countries.

Bayraktar (2006) investigated the robustness of the correlation between per capita growth rates and select macroeconomic indicators in Turkey using an Extreme Bounds Analysis covering the period 1968-1998. The

results revealed that state variables that were robustly correlated with economic growth included the investment share and human capital development, which were positively and significantly associated with economic growth. In terms of monetary indicators, the study found a robust negative and significant correlation between inflation and economic growth. The study, therefore, concluded that investment, human capital development and inflation were robust determinants of economic growth in Turkey.

Asheghian (2009) employed an augmented neoclassical growth model to investigate the determinants of economic growth in Japan covering the period 1971-2006. Using a Beach-Mackinnon technique, the study results showed that the growth rates of total factor productivity and domestic investment were positively and significantly associated with economic growth.

Checherita-Westphal and Rother (2012) examined the relationship between high government debt and economic growth in 12 Euro countries using a conditional convergence equation and covering the period 1970-2008. Using per capita GDP growth rate as the dependent variable, the results revealed that government balance, private savings, and trade openness were positively and significantly associated with economic growth; while population growth and real interest rates were negatively and significantly associated with economic growth. Government debt was found to be positively and significantly associated with economic growth, while the square of government debt was negatively and significantly associated with economic growth, confirming threshold effects.

Hamilton and Monteagudo (1998), using least-squares regression, re-examined the Mankiw *et al*. (1992) empirical model, using data covering the period 1960-1985. The variables included were changes in the rate of physical investment, the average percentage of the working age population that was in secondary school, and the average annual rate of growth of the working age population for that country between 1960 and 1970. They found that changes in output growth were positively and significantly associated with changes in the rate of physical investment. However, changes in human capital development were negatively and significantly associated with economic growth. They also found that the coefficient on the change in population growth was not statistically significant (Hamilton and Monteagudo 1998, p. 500).

Barro (1999) investigated the determinants of economic growth using an extended neoclassical growth model for 100 countries and covering the period 1960-1995. Based on a panel regression and three stage least squares method, the study results showed that investment share, growth rate of terms of trade, years of schooling, rule of law index, democracy index and international openness were positively and significantly associated with economic growth, while government consumption, total fertility rate, and inflation were negatively and significantly associated with economic growth.

In another study, Barro (2003) investigated the determinants of economic growth in a panel of 87 countries that covered both developed and developing countries during the period 1965-1995. The study results were based on three cross-section growth regressions that covered the periods 1965-1975; 1975-1985; and 1985-1995. The results revealed that average years of school attainment, investment, and the rule of law, democracy, trade openness, and terms of trade were all positively and significantly associated with economic growth, while initial level of per capita GDP, life expectancy, fertility rate, government consumption, inflation rate and landlockedness were negatively and significantly associated with economic growth.

4. DETERMINANTS OF ECONOMIC GROWTH IN SOUTH-EASTERN AND CENTRAL EUROPEAN COUNTRIES

This section investigates the key macroeconomic determinants of economic growth for South-Eastern and Central European economies. The four empirical studies that are examined include: Botric and Slijepcevic (2008), De Grauwe and Schnabl (2008), Prochniak (2011) and Fetahi-Vehapi, Sadiku, and Petkovski (2015).

Botric and Slijepcevic (2008) investigated the association between banking sector efficiency and economic growth in six South-Eastern European countries, namely: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia and Romania during the period 1995-2005. Using a panel fixed effects regression estimation method, the study found that inflation and interest rate spread (defined as the margin between lending and deposit rates) were negatively and significantly associated with economic growth. Conversely, general government balance as a percentage of GDP was positively and significantly associated with economic growth.

De Grauwe and Schnabl (2008), on the other hand, investigated the impact of exchange rate stability on economic growth in 18 South-Eastern and Central European countries during the period 1994-2004. Using a panel fixed effects regression method, the study found that the exchange rate index against the Euro and the exchange rate index against the Euro

and the US Dollar were negatively and significantly associated with output growth. They concluded that exchange rate stability promotes economic growth in these countries. Conversely, the study found that the growth rate of dollar exports and budget deficits as a percentage of GDP were positively and significantly associated with economic growth.

Prochniak (2011) investigated both demand- and supply-side determinants of economic growth in 10 Central and Eastern European economies during the period 1993-2009. Using an ordinary least squares estimation, the study found that the key economic growth determinants that were positively and significantly associated with economic growth in the selected countries included investment rate, human capital development, financial sector development, high services share in GDP, high share of working age population, development of information, communication and technology (ICT), high private sector share in GDP, economic freedom, and progress in market and structural reforms. Budget deficits, public debt, interest rates, and inflation were negatively and significantly associated with economic growth.

Fetahi-Vehapi, Sadiku, and Petkovski (2015) investigated the impact of trade openness on economic growth in 10 South-Eastern European countries during the period 1996-2012. Using additional regressors as control variables, the study found that trade openness, the initial level of GDP per capita, human capital development, gross fixed capital formation, and foreign direct investment were positively and significantly associated with economic growth; while population was negatively and significantly associated with economic growth when a fixed effects panel regression estimation method was used.

5. DISCUSSION

Table 1 summarises the findings of the study. The overall study results show that physical capital is largely positive and significantly associated with economic growth (Dollar 1992; Fischer 1992; Knight, Loayza, and Villanueva 1993; Hamilton and Monteagudo 1998; Barro 1999, 2003; Bleaney, Gemmell, and Kneller 2001; Anaman 2004; Acikgoz and Mert 2014; Bayraktar 2006; Prochniak 2011; Checherita-Westphal and Rother 2012; Anyanwu 2014; Fetahi-Vehapi, Sadiku, and Petkovski 2015). In some cases, the results also show that in developing countries investment can be negatively and significantly associated with growth (Most and Vann de Berg 1996; Chang and Mendy 2012).

In terms of human capital development, the empirical literature reviewed in this study shows that human capital development is positively and significantly associated with economic growth (Fischer 1992; Knight, Loayza, and Villanueva 1993; Easterly and Levine 1997; Chen and Feng 2000; Radelet, Sachs, and Whang-Lee 2001; Freire-Seren 2002; Bayraktar 2006; Anyanwu 2014). However, in some cases human capital development was found to be negatively and significantly associated with economic growth (Hamilton and Monteagudo 1998). These results are similar in both developing and developed economies. Much as most empirical studies have investigated the relationship between human capital development and economic growth, a meta-analysis of this relationship has confirmed that indeed this relationship is not homogeneous, with variations due to different factors (Benos and Zotou 2014).

Fiscal policy variables commonly used in the empirical growth literature cited in this study include budget surplus, tariffs, government expenditure, institutional quality, government effectiveness, and state-owned enterprises. The empirical results revealed that productive fiscal policies proxied by fiscal surplus, government savings, and the quality of institutions are positively and significantly associated with economic growth (Fischer 1992; Easterly and Levine 1997; Sachs and Warner 1997; Burnside and Dollar 2000; Bleaney, Gemmell, and Kneller 2001; Radelet, Sachs, and Whang-Lee 2001; Checherita-Westphal and Rother 2012; Anyanwu 2014). On the other hand, distortionary fiscal policies proxied by fiscal deficits, distortionary taxation, government consumption, and state-owned enterprises are negatively and significantly associated with economic growth (Knight, Loayza, and Villanueva 1993; Barro 1999, 2003; Chen and Feng 2000; Bleaney, Gemmell, and Kneller 2001; Bhaskara-Rao and Hassan 2011). These results are also similar across countries. However, the effect of fiscal policies on economic growth have been found to be weak and subject to the econometric methodology adopted (Nijkamp and Poot 2004).

The relationship between trade related variables and economic growth is also mixed and similar across countries. The proxies that have been investigated include real exchange rates, black market exchange rate premiums, trade openness, exports, imports and terms of trade. The empirical results revealed that trade openness, exports and imports are positively and significantly associated with economic growth (Fischer 1993; Sachs and Warner 1997; Barro 1999, 2003; Burnside and Dollar 2000; Chen and Feng 2000; Radelet, Sachs, and Whang-Lee 2001; Bhaskara-Rao and Hassan 2011; Chang and Mendy 2012; Checherita-Westphal and Rother 2012; Anyanwu 2014). On the other hand, the real exchange rate and black market

exchange rate premiums are negatively and significantly associated with economic growth (Dollar 1992; Easterly and Levine 1997; De Grauwe and Schnabl 2008). Terms of trade, on the other hand, show mixed results (Dollar 1992; Fischer 1993; Easterly and Levine 1997).

Demographic factors studied in the empirical growth literature include population growth, growth of the working age population, labour employed, labour force, and the fertility rate. Some studies found population, population growth, and labour employed to be positively and significantly associated with growth (Sachs and Warner 1997; Radelet, Sachs, and Whang-Lee 2001; Chang and Mendy 2012; Anyanwu 2014). Others however have found a negative and significant relationship between population, population growth, and the fertility rate (Most and Vann de Berg 1996; Hamilton and Monteagudo 1998; Barro 1999, 2003; Checherita-Westphal and Rother 2012; Anyanwu 2014). The results have also been confirmed in a meta-analysis between population growth and economic growth, where the effect depends on the variables included in the model (resource dilution and interaction effects) and econometric methodology adopted (Headley and Hodge 2009).

Exogenous factors that were commonly investigated in the empirical literature include foreign aid and foreign direct investment. The empirical literature revealed mixed results, with foreign aid and foreign direct investment either positively or negatively associated with economic growth. Most and Vann de Berg (1996), Chang and Mendy (2012) and Anyanwu (2014) found foreign direct investment and foreign aid to be negatively and significantly associated with economic growth. On the other hand, foreign direct investment and foreign aid were also found to be positively and significantly associated with economic growth (Most and Vann de Berg 1996; Burnside and Dollar 2000; Bhaskara-Rao and Hassan 2011; Chang and Mendy 2012; Anyanwu 2014). These determinants were found to be particularly important for developing countries. A meta-regression analysis on aid ineffectiveness, however, has confirmed that aid does not generate economic growth (Doucouliagos and Paldam 2011) supporting the negative association between the two variables.

Monetary policy or macroeconomic stability variables investigated in the empirical growth studies include inflation and money supply. The results revealed that in most cases inflation is negatively and significantly associated with economic growth (Fischer 1992; Barro 1999, 2003; Burnside and Dollar 2000; Chen and Feng 2000; Botric and Slijepcevic 2008; Bhaskara-Rao and Hassan 2011; Bayraktar 2006; Anyanwu 2014). The results are generally similar regardless of whether the countries studied are from developing or developed countries. However, a meta-analysis on this relationship would determine the robustness of the results and should be an area for future research.

The other category of sources of economic growth that include political factors, natural resources, geographic factors, reforms, and financial and regional factors also provide mixed results. Political variables investigated in this paper include rule of law, democracy, political assassinations, coups, and civil wars. The results showed that democracy and the rule of law were positively and significantly associated with economic growth (Barro 1999, 2003), while political assassinations, coups, and civil wars were negatively and significantly associated with economic growth (Easterly and Levine 1997; Burnside and Dollar 2000). A meta-analysis on the positive effects of institutions has been confirmed by Efendic, Pugh, and Adnett (2011); however, a meta-analysis of the effect of democracy on economic growth has been found to be indirect through human capital development, lower inflation, political stability and higher levels of economic freedom (Doucouliagos and Ulubasoglu 2008).

Natural resource variables used in the empirical growth literature include natural resource abundance or exports. The results showed that countries that relied on natural resources experienced lower economic growth (Sachs and Warner 1997; Radelet, Sachs, and Whang-Lee 2001). These results are applicable for both developing and developed countries. However, a meta-analysis on this relationship has found that the relationship between natural resource abundance and economic growth depend on a number of factors that include the levels of investment, institutional quality, distinction between natural resource types and resource dependence (Havranek, Horvath, and Zeynalov 2016).

The financial indicators investigated include financial depth, credit to the private sector and real interest rates. The results showed that financial depth was positively and significantly associated with economic growth (Easterly and Levine 1997), while credit to the private sector and real interest rates were negatively and significantly associated with economic growth (Checherita-Westphal and Rother 2012; Anyanwu 2014). However, a meta-analysis on the relationship of financial indicators and economic growth, though positive, has been found to be statistically weak (Bumann, Hermes and Lensink 2013).

Geographic factors investigated in the empirical growth literature include landlockedness, countries in the tropics, and those along the coastline. The study results revealed that countries that were landlocked

and situated in the tropics experienced low economic growth (Sachs and Warner 1997; Radelet, Sachs, and Whang-Lee 2001; Barro, 2003), while countries along the coastline experience high growth (Radelet, Sachs, and Whang-Lee 2001). Some of the reform variables investigated in the empirical literature included the implementation of policy reforms, where the results revealed a positive association with economic growth (Bhaskara-Rao and Hassan 2011; Prochniak 2011). Lastly, countries in Sub-Saharan Africa and Latin and Caribbean countries have been found to experience low economic growth compared to countries in other regions (Fischer 1992; Easterly and Levine 1997); while countries in Asia experience high economic growth compared to other regions (Burnside and Dollar 2000). The importance of these factors on economic growth could benefit a great deal from future studies that carry out a meta-analysis to examine the size of their effects on economic growth.

6. CONCLUSION

In this study, the key macroeconomic determinants of economic growth in developing and developed economies are investigated by qualitatively surveying previous empirical studies. The paper aims to assess whether there is consensus amongst growth economists in terms of the key macroeconomic determinants that either drive or hinder economic growth in developing and developed economies. The paper differs fundamentally from previous studies by focusing on distinguishing the key macroeconomic determinants of economic growth that are relevant for developing and developed countries. A general overview of the empirical studies investigated in this paper reveal that the key macroeconomic determinants that are significantly associated with economic growth in developing countries, based on the order of their importance, include exogenous factors (foreign aid and foreign direct investment), fiscal policy, trade, physical capital, human capital, demographics, monetary policy, natural resources and geographic, regional, political and financial factors. In developed countries, the study reveals that the key macroeconomic determinants significantly associated with economic growth include physical capital, fiscal policy, human capital, trade, demographics, monetary policy and financial and technological factors.

However, while these studies reveal the key macroeconomic determinants of economic growth in developing and developed economies, the size of their effects on economic growth are different from study to study. In particular, there are some determinants, such as foreign aid, population growth, human capital development, fiscal policy variables, geographic location, and reforms, among others, that show mixed results. This suggests that the genuine growth effects of these determinants are not homogeneous between economies. Thus, building on one of the limitations of this study, a more pragmatic approach would be to apply meta-regression analysis or quantitative techniques to investigate the quantum effects of the determinants of economic growth, especially those that reveal mixed results. According to Roberts (2005), a meta-regression analysis is a method that objectively seeks to explain and quantify the differences between estimates obtained from a set of empirical studies. Thus, future research on the examination of the determinants of economic growth should focus on using meta-regression analysis techniques.

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Table 1: Key Macroeconomic Determinants of Growth in Developing and Developed Countries

Author(s)	Countries and Sample Period	Methodology	Determinants with a Significant Impact on Growth
Developing Countries			
Dollar 1992	1976-1985 95 developing economies	Cross-sectional regression	– Investment rate is positively and significantly associated with economic growth. – Real exchange rate variability and real exchange rate distortions are negatively and significantly associated with economic growth.
Fischer 1992	Sub-Saharan Africa and Latin American and Caribbean countries; 1970-1985	Cross-section regression	– Human capital, investment, and budget surplus are positively and significantly associated with economic growth. – Initial real GDP and inflation are negatively and significantly associated with economic growth. – Growth in Sub-Saharan African countries is less than in Latin America and Caribbean countries
Knight, Loayza, and Villanueva 1993	98 countries; 76 developing countries; 1960-1985	Panel regression	– Physical, human capital are positively and significantly associated with economic growth. – Public investment is positively and significantly associated with economic growth. – Weighted tariff rates are negatively and significantly associated with economic growth.
Most and Vann de Berg 1996	11 Sub-Saharan Africa countries – Togo, Ivory Coast, Nigeria, Zambia, Rwanda, Botswana, Niger, Senegal, Mauritius and Cameroon; (sample period not available)	Country-specific Time series regression	– Foreign aid is negatively and significantly associated with economic growth in Togo, Ivory Coast, Nigeria, Zambia, Rwanda, and Botswana; and positively and significantly associated with economic growth in Niger, Senegal and Mauritius. – Domestic savings are positively and significantly associated with economic growth in Togo, Senegal, Ivory Coast, Nigeria, Cameroon, and Kenya; and negatively and significantly associated with economic growth in Mauritius and Zambia. – Foreign Direct Investment is positively and significantly associated with economic growth in Ivory Coast, Niger, Kenya and Togo; and negatively and significantly associated with economic growth in Mauritius and Rwanda. – Population growth is negatively and significantly associated with economic growth in Senegal, Mauritius and Niger.
Easterly and Levine 1997	Sub-Saharan Africa and Latin America and Caribbean Countries; 1960-1980	Cross-sectional regression	– The log of schooling, financial depth, a measure of telephones per worker, and fiscal surplus are positively and significantly associated with economic growth. – Political assassinations and black market premiums are negatively and significantly associated with economic growth. – Sub-Saharan African countries and Latin America and Caribbean countries experienced slow growth compared to other regions.
Hamilton and Monteagudo 1998	98 non-oil countries; 75 intermediate countries; 22 OECD 1960-1985	Ordinary Least Squares regression with White (1980) Heteroskedasticity – Consistent standard errors	– The change in output growth is positively associated with the change in the rate of physical investment. – The change in output growth is negatively associated with the change in the rate of population growth. – An increase in the fraction of resources devoted to education is associated with slower (not faster) economic growth.

Author(s)	Countries and Sample Period	Methodology	Determinants with a Significant Impact on Growth
Barro 1999	100 countries (Asia, Latin America, OECD, Sub-Saharan Africa; 1960-1995	Panel regression and three stage least squares method	– Investment share, growth rate of terms of trade, years of schooling, rule of law index, democracy index and international openness are positively and significantly associated with economic growth; – Government consumption, total fertility rate, and inflation are negatively and significantly associated with economic growth.
Burnside and Dollar 2000	56 countries (16 middle-income, and 40 low-income countries); 1970-1993	Two-stage least squares (2SLS) method (regressions divided in six four-year time periods covering the years)	– Foreign aid is positively and significantly associated with economic growth when it enters the growth regression as an interactive term with policy. – Budget surplus, institutional quality, trade openness and countries situated in East Asia are positively and significantly associated with economic growth. – Political assassinations, inflation and countries that are located in SSA are negatively and significantly associated with economic growth.
Chen and Feng 2000	China (29 provinces); 1978-1989	Cross-country analytical approach	– University enrolment and trade are positively and significantly associated with economic growth. – Inflation and state-owned enterprises are negatively and significantly associated with economic growth.
Radelet, Sachs, and Whang-Lee 2001	14 Asian countries; 1965-1990	Cross-country growth framework	– Initial education attainment, coastline distance to land area, government savings, trade openness, quality of institutions, life expectancy, growth of working age population are positively and significantly associated with economic growth. – Initial output per worker, natural resource abundance, landlockedness, location to the tropics are negatively and significantly associated with economic growth.
Barro 2003	87 countries (developed and developing countries); 1965-1995	Cross-country regressions	– Average years of school attainment, investment, rule of law, democracy, trade openness, and terms of trade are positively and significantly associated with economic growth; – Initial level of per capita GDP, life expectancy, fertility rate, government consumption, inflation rate and landlockedness are negatively and significantly associated with economic growth.
Bhaskara-Rao and Hassan 2011	Bangladesh; 1970-2007	Neoclassical growth framework – ARDL method	– The implementation of reforms since the 1980s, FDI, money supply, and trade openness are positively and significantly associated with economic growth. – Government expenditure and inflation are negatively and significantly associated with economic growth.
Chang and Mendy 2012	36 African countries; 1980-2009	Panel fixed effects regression model	– Foreign aid, exports, imports, labour employed and openness are positively and significantly associated with economic growth. – Foreign direct investment, domestic investment, and gross domestic savings are negatively and significantly associated with economic growth. – In Middle and North Africa foreign aid is positively and significantly associated with economic growth; while in West and East Africa foreign aid is negatively and significantly associated with economic growth.

Author(s)	Countries and Sample Period	Methodology	Determinants with a Significant Impact on Growth
Anyanwu 2014	53 African countries; 1996-2010 (five non-overlapping three-year averages of cross-sectional data); Time series data for China; 1984-2010	cross-country panel regression for Africa; and time-series regression for China	– Africa: higher domestic investment, net official aid, secondary school enrolment, metal price index, government effectiveness (governance), and urban population are positively and significantly associated with economic growth. – China: domestic investment, and trade openness are positively and significantly associated with economic growth; while official development aid, population growth, inflation, credit to the private sector, agricultural material price, and oil price indices are negatively and significantly associated with economic growth.
Developed Countries			
Bleaney, Gemmell, and Kneller 2001	22 OECD countries; 1970-1995	Panel estimation: two-way fixed effects model	– Investment and productive expenditure are positively and significantly associated with economic growth. – Distortionary taxation is negatively and significantly associated with economic growth.
Freire-Seren 2002	Spain (Spanish Regions); 1964-1991	Augmented neoclassical growth model	– Human capital and investment are positively and significantly associated with economic growth.
Anaman 2004	Brunei Darussalam; 1971-2001	Augmented neoclassical growth model	– Exports and investment share are positively and significantly associated with economic growth. – Government size exhibits threshold effects where moderate government size has a positive and significant association with growth – and higher government size has a negative and significant association with growth.
Acikgoz and Mert 2005	3 Asian countries; Time series data (Taiwan, 1951-2007; Korea, 1953-2007; and Hong Kong, 1960-2007)	ARDL and FMOLS methods	– Short-run results: investment share is positively and significantly associated with economic growth. – Long-run results: investment is positively and significantly associated with the level of real GDP per capita.
Bayraktar 2006	Turkey; 1968-1998	Extreme Bounds Analysis	– Investment share and human capital have a robust positive and significant association with economic growth. – In terms of monetary indicators, the study found a robust negative and significant relationship between inflation and growth.
Asheghian 2009	Japan; 1971-2006	Augmented neoclassical growth model - Beach-Mackinnon technique	– The growth rate of total factor productivity and the growth rate of domestic investment are positively and significantly associated with economic growth.
Checherita-Westphal and Rother 2012	12 Euro countries; 1970-2008	Conditional convergence equation	– Government balance, government debt, private savings, and trade openness are positively and significantly associated with economic growth. – Population growth, the square of government debt and real interest rates are negatively and significantly associated with economic growth.
South-East and Central European Countries			
Botric and Slijepcevic 2008	6 South-Eastern European countries; 1995-2005	Panel Fixed Effects Regression	– Inflation and interest rate spread are negatively and significantly associated with economic growth. – General government balance as a share of GDP is positively and significantly associated with economic growth

Author(s)	Countries and Sample Period	Methodology	Determinants with a Significant Impact on Growth
De Grauwe and Schnabl 2008	18 South-Eastern and Central European countries; 1994-2004	Panel Fixed Effects Regression	– Exchange rate stability against the Euro and exchange rate stability against the Euro and US Dollar are negatively and significantly associated with economic growth. – Growth rate of dollar exports and budget deficit as a share of GDP are positively and significantly associated with economic growth.
Prochniak 2011	10 Central and Eastern European countries; 1993-2009	Ordinary Least Squares	– investment rate, human capital development, financial sector development, high services share in GDP, high share of working age population, development of information, communication and technology (ICT), high private sector share in GDP, economic freedom, and progress in market and structural reforms are positively and significantly associated with economic growth – Budget deficits, public debt, interest rates, and inflation are negatively and significantly associated with economic growth.
Fetahi-Vehapi, Sadiku, and Petkovski 2015	10 South East European countries; 1996-2012	Panel Fixed Effects regression	– Trade openness, initial level of GDP per capita, human capital development, gross fixed capital formation, foreign direct investment are positively and significantly associated with economic growth. – Population is negatively and significantly associated with economic growth.

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TRADE LIBERALISATION AND ECONOMIC GROWTH IN MACEDONIA

Viktorija Mano–Bakalinov

Abstract

The objective of this paper is to explore the effects of trade on Macedonian economic growth. The autoregressive distributed lag (ARDL) model is applied on yearly data over the period of 1993-2014. Empirical investigation reveals that an increase of population and openness demonstrate a positive and significant effect on Macedonian economic growth. Given other diverging findings, this suggests that the relationship between trade reforms and growth through the productivity function may vary across transition economies. Nevertheless, the findings of this paper indicate that policies focusing on market liberalisation and opening the economy to trade have a positive effect on Macedonian economic growth, both in the short run and the long run.

Keywords: *ARDL, growth, reforms, Macedonia, transition.*

JEL codes: *C32, F63, N14, O11*

1. INTRODUCTION

Questions related to what determines the potential growth rate and what reforms could increase growth should be central to deciding a country's policy agenda. In the context of the Macedonian economy, a relevant question is the extent to which market reforms can be considered as the major drivers of economic growth. Since the Macedonian transition process in the 1990s, structural reforms, as well as macroeconomic adjustment to safeguard economic stability in recent years, should have increased the potential growth rate. Looking ahead, policy makers need to know what reforms could increase Macedonia's growth further and lead to faster income convergence with neighbouring countries and the EU.

Transition economies have been perceived as an interesting area of research by many academics, initially because of the remodelling of the institutions due to the change of regime, and later owing to the business environment that has emerged through the movement toward a market economy (Bevan, Estrin

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and Meyer 2004). The transition from socialism to capitalism in Central – Eastern (CEE) and South - Eastern Europe (SEE) was perceived by academics as a political, social and economic process (Bevan and Estrin 2000). Despite the highlighted optimism concerning the benefits from economic policies in these countries, the expectations were not realised. The author seeks to contribute to this debate by considering the case of a transition economy in South - East Europe – Macedonia.

As a small open economy, Macedonia is sensitive to fluctuations in international markets and has suffered contraction in GDP growth due to contagion and spillover effects from external factors. The aim here is to further investigate the argument presented in the economic literature that the market liberalisation process and openness of a transition economy lead to an increase in GDP and therefore economic growth. The objective of this paper is to test the traditional view that the IMF's prescription of trade liberalisation policies in a planned economy will bring openness to the market and economic growth. As far as the author is aware, this is the first attempt to empirically estimate the determinants of growth in Macedonia, and which includes more recent macroeconomic data and the use of a more developed method than a simple multiple regression analysis. Only a few inconclusive empirical studies have been carried out to determine which explanatory variables matter for Macedonia's economic growth and these have been done mostly by using panel or cross-national analysis (Botric and Skuflic 2006; Krstevska and Petrovska 2012; Stancheva – Gigov 2014). In line with this, quantitative secondary data is used, coupled with time-series autoregressive distributed lag (ARDL) analysis to determine the effect and the explanatory power of macroeconomic variables on economic growth. The findings of this study indicate that some of the economic reforms have a statistically significant and positive influence on GDP. It is argued that this result is important, not only from the perspective of a transition economy, but also in the general context of the economic reform – growth debate.

The remainder of this paper is organised as follows. Section two presents the model implemented in this study and sketches out the context under study. Section three discusses the theoretical background of this paper. Section four provides insight into the methodology used in this paper, leading to section five, which interprets the findings from this analysis. Finally, section six presents the concluding summary as well as discusses the limitations of this research.

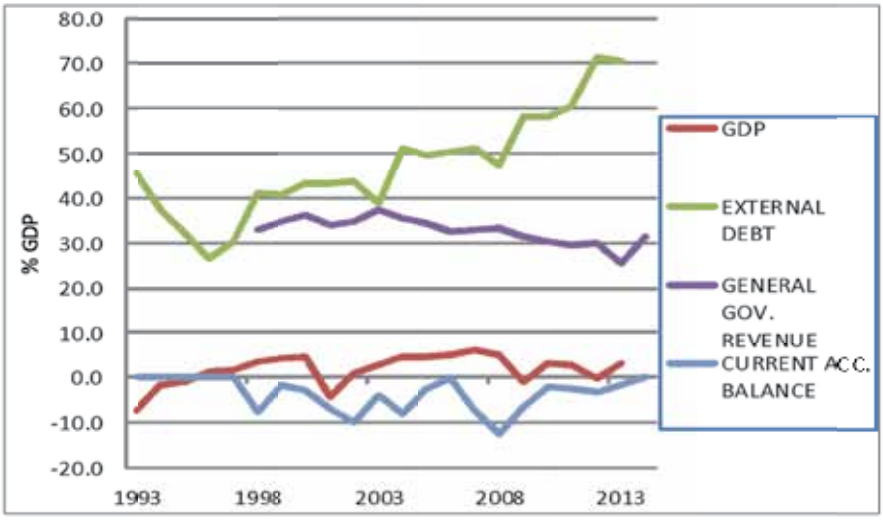
2. OVERVIEW OF THE MACEDONIAN CONTEXT

Since the aim of this paper is to investigate the role of trade liberalisation policies in Macedonian economic growth, it is essential to present the context under investigation. In this section the author offers a thumbnail sketch of Macedonia. The author argues that in order to evaluate the policies implemented by international financial institutions (IFI) it is necessary to understand the specificity of the Macedonian context.

Macedonia is a small country located in the centre of the Balkan Peninsula in SEE. It is landlocked by its neighbours Kosovo and Serbia (to the North - East and North - West respectively), Bulgaria (to the East), Greece (to the South) and Albania (to the West). The population of Macedonia is 2.1 million citizens, based on forecasted data from the United Nations in 2012 (since a census has not been conducted since 2002). The capital is Skopje, the main language is Macedonian and the majority religion is Christian Orthodox.

The performance of the Macedonian economy can usefully be assessed in three distinct periods: the first is the period from 1992-2000, roughly the first decade following the country's independence; the second period from 2001-2008 and the third period from 2009 - 2015. This first period comprises the turbulences and difficulties facing a newly independent country. Figure 1 below indicates stagnation and even shrinkage of the economy during the period 1992-1996 and then a small expansion in the period 1996-1999, with a

Figure 1: Economic overview of Macedonia



Source: Data from the National Bank of Macedonia, own calculations.

downturn during the Kosovo crisis in 1999 and a sharp downturn in the Macedonian economy in 2001 as a result of the ethnic conflict in the country. In the period from 1996 to 1999 significant economic growth is noticed due to the smaller increase in the GDP per capita and the low external debt.

In the period between 2001 and 2008 (especially after 2001) the economies of the SEE region (including Macedonia) had enjoyed a mini-boom, with a stable increase in GDP mainly fuelled by large capital inflows of international finance (such as bank credits enabling increased domestic borrowing by both firms and households).

The third period, 2009-2015, demonstrates a stable temporary increase in GDP. However, in 2009 and 2012 there was a downturn in the Macedonian economy due to unfavourable global trading conditions, more specifically as a result of the US and the EU crises. Unlike the 1996-1999 period, where both GDP and GDP per capita were increasing, the period after 2008 (since the occurrence of the US and Greek crisis) the rate of economic growth was lower (smaller increase in GDP per capita) since the standard of living was failing. Investments have also indicated a significant growth throughout this period, with exceptions in the years 2008 and 2012, where a slower increase in capital inflow has been projected due to the ethnic conflict in Macedonia, the US crisis and the Greek crisis.

Since Macedonia's independence, inflation rates have been high due to structural problems and the macroeconomic instability in the country. The years 2001, 2008 and 2012 demonstrate increased inflation due to domestic political instability and international financial crises. This also indicates low competitiveness due to increased prices on imports. Aside from these specific years, inflation rates have been changeable, sometimes even falling to low levels, which indicates that import prices have the potential to decline further. The trade and current account balance in the first decade was relatively high and in the second decade normalised. However, the years around the ethnic conflict (in 2001) and the US crisis (in 2007/8) demonstrate an increased current account balance, a fall that was crystallised in the last few years of the data series as the crises led to a decrease in the consumption of luxury goods. Government debt had been stable from its peak in 2001, and even in the period during the US crisis the debt did not increase, but since the Greek crisis and the withdrawal of Greek capital, government debt has increased again, reaching levels of 38% in 2014 (Expansion 2014). This increase in government debt can be explained by the implementation of government programs in order to stimulate the private sector during times of crisis, low trade and low capital inflow from Greece. Other programs that increased the government debt included efforts at attracting foreign greenfield investment in newly-created free economic zones, which provided low-tax free land, faster custom services and other financial benefits for foreign investors (DTIDZ 2014). Finally, a major government-funded development project started in 2010 and known as 'Skopje 2014', which consists mainly of the construction of new government buildings, monuments and museums also contributed to the debt. However, even though such programs implemented by the government have increased government debt, unemployment rates have not decreased and the economy has not experienced significant growth.

Considering the background numerical analysis of the data provided, Macedonia's transition should be considered an interesting context to study within the aim of understanding which key variables play a crucial role in economic growth for a transition economy during this period.

3. THEORETICAL BASIS OF THE INVESTIGATION

Mainstream economic literature covers many theories that have attempted to understand economic growth. However, the majority of the current literature highlights one main theory that provides an understanding of the sustainability of long-run economic growth; the neo-classical theory.

The 'neo-classical growth theory,' or the Solow-Swan model, argues that the economy's long-run growth is dependent on changes (exogenous factors to the capital-labour ratio), such as saving, technological progress, population and capital depreciation (Solow 1956; Swan 1956). In other words, if two countries have the same level of technology, savings, population and capital depreciation, but vary in the level of capital-labour ratio, then the economy with lower capital-labour ration will grow more rapidly than the other economy with a higher capital-labour ratio (Solow 1956). Thus, the neo-classical model predicts that countries over time with different per-capita income will converge. This is named 'absolute convergence' (Swan 1956). According to Solow-Swan (1956), economies tend to converge to their steady state, meaning that their long run economic growth will be stable. Therefore, the 'neo-classical growth theory' argues for a short-run growth by accumulating physical capital and long-run growth reached through changes in the exogenous factors mentioned above. However, this growth model is feasible in a closed economy where there is no interaction with the rest of

the world (Daud et al. 2013).

Over the past decades, academics and policy-makers have shown consistent interest in and have made efforts to investigate and develop a theoretical link between trade liberalisation and economic growth. A potential positive relationship between openness and growth has generated an 'unprecedented wave of unilateral trade reforms', arguing that about 100 economies have undertaken certain trade reforms in the last 20 years (Greenaway, Morgan and Wright 2002: 230). Greenaway et al. (2002) emphasise through their research that there is a positive relationship between the growth of exports and growth of GDP in the long run. Thus, they argue that countries with a higher level of openness grow faster over time. While Edwards (1998) argues that the relationship between trade and openness is robust in the long term, Rodriquez and Rodrik (1999) question this conclusion. They highlight that their research indicates an overstated relationship between outward trade and growth, whereas the link between inwardly orientated trade and growth provides limited evidence (Rodriquez and Rodrik 1999). There has also been extensive research undertaken on the effects of trade reform on growth in the short run. The literature is inconclusive, since some studies bring forward a positive relationship, some indicate no relationship, while some even show a negative relationship. On one hand, Harrison and Hanson (1999) suggest that static trade models demonstrate that shifts toward openness can increase growth in the short run. Rees and Tyers (2004), on the other hand, argue that due to the removal of import barriers, openness can be contractionary in the short term in some economies. Finally, Greenaway et al. (2002), in their analysis demonstrated that the relationship between trade and growth is in the shape of a 'J' curve, increasing initially but declining at certain levels of trade (Shahbaz 2012). This inconclusiveness is explained by Harrison and Hanson (1999) by the fact that different studies involve different proxies for trade liberalisation and use different robustness tests. The contribution of this paper is to provide a deeper understanding of the relationship between certain trade policies and their effect on economic growth in transition economies, especially since the Macedonian context has not been researched enough.

This paper contributes to the field of development economics specifically in the area of transition economies. Several studies have focused on SEE transitional growth and provided possible explanations why the SEE transition economies did not become the economic powerhouse they were expected to become (Bartlett 2009; Bevan and Estrin 2000; Horvat 2004). Academics in this area of research have attributed the low growth rate of SEE transition economies to a number of issues. Some academics have mentioned weak institutions as an important factor that has influenced transitional growth (Efendic and Pugh 2015; Manolova, Eunni and Gyoshev 2008). Despite these economies being open and growing, academics have pointed out that investment is relatively low compared to the rest of the CEE transition economies (Bevan and Estrin 2004). Fiscal pressures are another issue, which due to weak revenue performance, weighty debt service and high input costs put a strain on government spending, while the political turbulences in the region serve as a disincentive for investors to invest in the private sector (Bocchi 2008). Macedonia's high dependency on the external environment and its long-standing constraints to growth - lack of adequate infrastructure, low investment, high unemployment and government weakness –still constrain growth.

By focusing on the trade reforms introduced during Macedonia's transition, the author sheds light on the diverse effect that specific macroeconomic determinants have on GDP both in the long and short runs. It is here that the author aims to provide an understanding of the openness of the Macedonian economy and to what extent certain country specific variables can explain economic growth in Macedonia.

4. METHODOLOGY

The existing methodology of the empirical investigation follows the voluminous growth regression literature initiated by Barro and Sala – I – Martin (1995). Depending on the aim of the study and insights, various explanatory variables have been found to be significant in literature on the relationship between trade liberalisation and growth.

4.1 The Data, Sources and Data Definition

This study takes advantage of secondary data on macroeconomic variables, extensively used in the literature regarding similar transition economies. The data set is obtained from the State Statistical Office of the Republic of Macedonia,[1] the National Bank of Macedonia[2] and International Monetary Fund reports.

1 Population and Secondary Schooling are annual observations sourced from SSORM. The Openness variable is constructed by the sum of total exports and imports to the GDP and is an index.

2 Inflation, the FDI and the GDP are from both NBM and IMF reports and are also quarterly. Due to the non-availability of quarterly data for the rest of the variables, the series were interpolated to derive annual data from the available quarterly data.

The sample period runs from 1993 to 2014, making for a total of 21 observations. All data are transformed to their growth rates, and their frequency is annual. For the analysis of the data collected, the author used a STATA software package, which is a program used in research work in the fields of economics, sociology, and the political and medical sciences.

4.2 Model Specification and Explanation of the Variables

In order to use appropriate model specification, it is crucial to formulate a general model that encompasses the main determinants of growth identified by the theory. This section relies on empirical specification used by Daud, Ahmad and Azman-Saini (2013), which uses time-series regression analysis of macroeconomic determinants of growth for the Malaysian economy. The author applies this specification with adaptations for the case of the Macedonian economy.

This specification has been chosen as the most appropriate according to two criteria, the analysis of a transition economy and the application of a time-series linear regression analysis. Considering both the Macedonian and Malaysian context there are similarities that need to be highlighted. First of all, the transition process of the Malaysian economy resembles the transition of the Macedonian economy in many ways. Both economies followed suggested liberalisation policies by the IMF, which at their core were very much alike and based on the standard neo-liberal prescriptions – rapid shock therapy, trade and financial liberalisation and privatisation (Gore 2000). Second, considering the theory discussed in the previous section and the fact that little research has been conducted on the growth of transition economies using time-series analysis, this specification and estimators were found helpful for the objectives of this paper, especially as most of the studies exploring the debate around trade and growth in small transition economies in Europe use panel or cross country analysis to determine the significant macroeconomic indicators to growth (Backe and Gardo 2012; Bartlett and Prica 2012; Bartlett 2009).

Considering the explanation of the variables in the previous section, before moving to the model itself the author would like to justify the choice of variables. The model adopted and adjusted in this paper is based on the neoclassical growth model argued in section three. According to the theoretical underpinnings of this paper, an economy's growth in the long-term is based on exogenous factors such as population, savings, technological progress and capital depreciation (Solow 1956). The aim of this paper is to investigate the long-term determinants that change the growth of the economy. Thus, by considering certain variables such as FDI, POP, OPEN and INF (please see their explanation below), I take in consideration the exogenous factors that potentially affect the growth of the Macedonian economy. However, on the other hand, since the neo-classical theory argues for the existence of the 'absolute convergence', the model includes the variables POP and SEC (please see their explanation below), in an attempt to understand the short-run relationship between accumulated physical capital and growth. Thus, I have chosen this model as the most appropriate because it considers both the relationship of the accumulated physical capital and short-run growth as well as exogenous factors and long-term growth (Swan 1956).

Having said this, the model that is adopted and adjusted in this paper uses Villanueva's (2003) neoclassical growth model as a point of reference. Through this model, it is argued that a country that intends to increase its economic growth will increase its savings, leading to more investments and increased economic growth. Daud et al. (2013) have used this model to explain economic growth by considering traditional macroeconomic variables and their effect on GDP:

$$GDPt = a + b1\ FDIt + b2\ POPt + b3\ GOVt + b4\ OPENt + b5\ EDt + b6\ DSERVt + et \quad (1)$$

This specification is applied to the Macedonian case by excluding one of the variables (debt service payment) since it is not available. Also, the variables GOV and ED are excluded since they are highly correlated with other variables, and INF and SEC are added as significant variables according to the theoretical underpinnings discussed above. Thus the adjusted equation for Macedonian case is the following:

$$GDPt = a + b1\ FDIt + b2\ POPt + b3\ INFt + b4\ OPENt + b5\ SECt + e\ t \quad (2)$$

GDPt: Gross domestic product at time t
FDIt: Foreign direct investments at time t
GOVt: Government revenue at time t
OPENt: Trade openness at time t
POPt: Population at time t
EDt: External Debt at time t
DSERVt: Debt service payment at time t
SECt: Percentage of population enrolled in secondary school at time t
INFt: Inflation index at time t
et : error term at time t

The variables POP, SEC and FDI represent the changes in the rate of human capital and capital factor input in the production function (as presented by the endogenous growth theory). Since fiscal austerity, monetary policy, market liberalisation and privatisation were the main milestones of the 'Washington Consensus' in the decades of the 1980s and 1990s (Stiglitz 2002, p.54), the rest of the variables OPEN[3] and INF account for country-specific government policies implemented relating to fiscal and monetary policies. This increased openness of a market provides more possibilities to finance an increased external debt, raises the level of foreign reserves, increases return on investment and productivity, as well as increases the government revenue (Kose, Prasad and Terrones 2003). As argued previously, traditional economists perceive tight fiscal policy as a stimulator of strong budget constraints that encourage restructuring, which also stabilises the level of inflation indicating the determination of the government to carry out reforms.

4.3 The Auto Regressive Distributed Lag (ARDL) Model

Since OLS is appropriate if all variables are stationary (I(0)), and the Johanson approach if all variables are stationary (I(1)), researchers could not obtain reliable results by using these methods if one of the variables was non-stationary (Johansen and Jesulius 1990). The ARDL model was introduced by Pesaran, Shin and Smith (2001) in order to incorporate a mixture of I(0) and I(1) data, and involves a single equation set-up different variables are assigned different lag-lengths when they enter the model. The reason for the choice of the ARDL model is that it is robust for small sample sizes (Mah 2000; Tang and Nair 2002). Therefore, the ARDL bound test employed here is used to model the data appropriately and extract both long and short-run relationships.

This approach has several desirable statistical features. First, the co-integrating relationship can be estimated easily using OLS after selecting the lags order of the model. Second, it allows testing simultaneously for the long and short-–run relationships between the variables in a time series model. Third, in contrast to the Engle-Granger and Johansen methods, this test procedure is valid irrespective of whether the variables are I(0) or I(1) or mutually co-integrated, which means that no unit root test is required. Fourth, in spite of the possible presence of endogeneity, the ARDL model provides unbiased coefficients of explanatory variables along with valid t-statistics. In addition, the ARDL model corrects the omitted lagged variable bias (Inder 1993). Finally, this test is very efficient and consistent in small and finite sample sizes.

The first stage of the analysis is to define the lag order and see what lag is appropriate for each variable in the model. This is done by using a VARSOC table (Vector Auto Regressive Specification Order Criterion). The order of the lags in the ARDL model is selected using appropriate selection criteria, such as Akaike Information Criterion (AIC), final prediction error (FPE), Schwarz's Bayesian information criterion (SBIC), the Hannan and Quinn information criterion (HQIC), log likelihood (LL) and the likelihood ratio test (LR(p)). When more than one criterion brings forward a specification that satisfies the diagnostic testing, the model with the shortest lags is chosen. The testing is done by using the maximum lag length (4) for each variable, since it has been argued that selection by using shorter lags can lead to correlation issues, misspecified models and losing degrees of freedom (Pesaran et al. 2001).

After this step, the stationarity of each variable at level and at first difference needs to be checked by using an ADF test and focusing on the Z(t) statistic. Once the variables have been checked and shown that they are not I(2), the analysis proceeds to the next stage, which is the analysis of the ARDL model.

The null hypothesis that is investigated here argues for a relationship that is not co-integrating between the examined variables irrespective of whether the variables are stationary at different levels I(1) or I(0) (H_0: $\theta_1 = \theta_2 = \theta_3 = \theta_4 = \theta_5 = 0$). The alternative hypothesis is that H_0 is not true. If the value of the statistic from a Wald test is outside the range of the critical bounds (both lower and upper) then a conclusive inference can be made without considering the order of integration of the variables (F- statistics > upper critical bound => H0 is rejected; F< lower critical bound => H0 cannot be rejected). Otherwise, if the F-statistic falls between the upper and the lower critical bound then a conclusive inference cannot be made.

Assuming that the bounds test leads to the conclusion of co-integration then a meaningful estimate of long-run equilibrium relationship between variables is possible, as well as estimating the usual ECM for the short-run coefficients. However, co-integration does not suggest that the coefficients are stable; if they are not stable the results will lose their reliability. In order to avoid this, Pesaran and Pesaran (1997) recommend testing for long-run parameter stability by using the cumulative sum of recursive residuals (of square) (CUSUM) and (CUSUMQ) test. These two tests can be

3 Presented as an index constructed from IMP, EXP and GDP

used without the information of the structural break points and test for the null hypothesis, which is that all coefficients are stable (Brown et al. 1975). The CUSUM detects systematic changes in the regression coefficients and the CUSUMQ uses the same procedure but focuses on situations when the departure from the constant of the regression coefficient is unexpected and sudden. Normally, the graph plot should stay in-between the 5 percent significance level, which indicates the absence of any instability of the coefficients, suggesting that the parameters of the model do not experience any structural instability during the study period.

5. RESULTS AND FINDINGS

5.1 Varsoc

First, the author checks the optimum lag order. This is done using a VARSOC Table (Vector Auto Regressive Specification Order Criterion), which is available in STATA. The VARSOC function uses seven criteria that determine the optimum lag to be used. Thus the optimum lags of ARDL (p,q1,q2,q4,q5) for the variables GDP,OPEN,POP,INF,FDI and SEC is ARDL (1,3,1,0,0,3).

5.2 Augmented Dickey Fuller

Even though testing the variables is not essential according to the ARDL model, it is necessary to undertake a unit root test in order to detect the right model that should be used. The standard Augmented Dickey-Fuller (ADF) unit root test was exercised to check the order of integration of all variables. The results obtained are reported in Table 1. Based on the ADF test statistic, the variables rejected the null hypothesis. The values in Table 1 reject the null hypothesis of the unit root according to McKinnon's (1974) critical values. The null hypothesis is rejected at a 1% significance level according to the critical values in the table below.

The GDP variable is stationary according to the ADF test when the model does not incorporate the trend with no lags. The absolute value of the t-statistic (4.071) is much higher than the absolute critical values according to the ADF tables considering only intercept (1%: -2.539, 5%: -1.729, 10%: -1.328). The FDI variable is stationary according to the ADF test when the model considers first difference with trend and the constant of the variable with no lags. The absolute value of the t-statistic (5.653) is much higher than the absolute critical values according to the ADF tables (1%: 4.38, 5%: 3.6, 10%: 3.24). The POP variable is stationary according to the ADF test when the model considers first difference with trend and the constant of the variable with one lag. The absolute value of the t-statistic (4.031) is much higher than the absolute critical values according to the ADF tables (1%: 4.38, 5%: 3.6, 10%: 3.24). The OPEN variable is stationary according to the ADF test when the model considers first difference with trend and the constant of the variable with one lag. The absolute value of the t-statistic (4.853) is much higher than the absolute critical values according to the ADF tables (1%: 4.38, 5%: 3.6, 10%: 3.24). Finally, the variable SEC appears to be non-stationary according to the ADF test (no trend or constant) at first difference and at 0 lags, and the INF is stationary at level and 0 lags.

Therefore, the table below demonstrates that half of the variables reject the hypothesis of unit root at level (GDP, INF and POP) and the rest of the variables reject the null hypothesis of the ADF test at first difference (OPEN, FDI and SEC). Noticeably, the mixture of both I(0) and I(1) variables would not be possible to analyse under the Johansen procedure. This gives a good justification for using the bounds test approach, or the ARDL model, which was proposed by Pesaran et al. (2001).

Table 1: ADF Test

ADF TESTS	AT LEVEL			AT FIRST DIFFERENCE		
	Constant and trend	Constant	No trend or constant	Constant and trend	Constant	No trend or constant
GDP (0)	-2.475	1.122	(4.071)*			
OPEN (3)	-1.976	-0.135	1.186	(-4.853)*(0)		
INF (0)	(-32.048)*	(-36.877)*	(-39.586)*			
POP (1)	-4.200	(-4.031)*	1.808			
FDI (0)	-3.240	-3.209	-1.575	(-5.653)*		
SEC (3)	-3.653	-2.909	0.253			(-2.812)*(0)

5.3 Co-integration test and Correlation matrix

Past studies have used different techniques of co-integration; but all of them pose certain limitations. The first limitation is that these techniques may not be appropriate when the sample size is too small (Pesaran et al. 2001). For this study the author uses the bounds testing co-integration approach developed by Pesaran et al. (2001), which is more robust for the small sample. The calculated F-statistics for the co-integration test is shown in the appendix. The value of the F-statistics for the model above (71.10) is higher than the upper bound critical value (3.516 – 4.781) at the 1% level of significance, using constant and no trend. This implies that the null hypothesis of no co-integration is rejected. Therefore, there is a co-integrating relationship among the variables.

Considering the correlation of the variables mentioned in the previous sections, the author has analysed the level of correlating relationship between the variables in the first model (presented by equation 1 in section 4.2). Thus, certain variables such as ED and GOV that showed high correlation with the rest of the variables in the model were exempt and another model was constructed that included the variables presented by equation 2 in Section 4.2. It is argued that attempts at applying the regression technique to highly multi-collinear independent variables results in sensitive parameter estimates to changes in the model or the sample coverage (Farrar and Glauber 1967). However, Liu (1960) argues that data limitations rather than theoretical limitations are primarily responsible for a persistent tendency to oversimplify econometric models. Considering the fact that the Macedonian context provides limited data points (due to the recent independence of the country) and not a huge variety of measured variables (due to poor institutional development), the author has attempted to lower the multicollinearity effects by disregarding some of the variables in order to ensure a more reliable result.

5.4 ARDL and Diagnostic Tests

The goodness of fit of the specification, that is, R squared and adjusted R-squared, is 0.79 and 0.50, respectively. The estimated coefficient of the long-run relationship between GDP, OPEN, FDI, INF, SEC and POP are expected to be significant:

$$\log GDP_t = 3.639 + 0.008OPEN_t + 0.015FDI_t + 0.004POP_t - 0.009INF_t - 0.007SEC_t \quad (3)$$

Equation (3) presents the correlation of the variables with GDP in the long run. From the table below it is clear that in the long run, the trade openness variable significantly affects the level of GDP (significance level 5%). In other words, as the more open an economy is to trade, the higher the GDP. Inflation has a negative effect on GDP in the long run but according to the table above, this variable is not statistically significant. The FDI variable indicates a positive relationship with the GDP, meaning that as FDI increases GDP will also increase. However, the ARDL model below does not indicate a significant effect of FDI on GDP. The POP variable has a positive significant effect on GDP, according to the t values in the table above (significance at level 1%). Lastly, the variable measuring the percentage of young population enrolled in secondary school has a positive but insignificant effect on GDP in the long run.

The robustness of the model has been defined by several diagnostic tests such as the Breusch-Godfrey serial correlation LM test, the Jacque-Bera normality test and the Ramsey RESET specification test. All the tests disclosed that the model has the aspirational

Table 2: Growth and macroeconomic determinants
Dependent Variable: Logged value of annual GDP in domestic currency

Variable	Coefficient	P>|t|
lnGDP1	-0.681	0.044
Long Run		
OPENL1	0.00782***	0.037
INFL1	-0.0098	0.804
POPL1	0.00376**	0.012
lnFDIL1	0.01472	0.328
SECL1	-0.0073	0.399
Short Run		
Constant	3.639	0.102
OPEND1	0.0054***	0.038
INFD1	-0.00063	0.819
POPD1	0.00641	0.173
lnFDID11	0.00382	0.623
SECD1	0.0135	0.127
Number of Observations	20	
R2	0.791	
R2 (Adjusted)	0.502	
Model Diagnostics		
SK test (test for normality)	6.95	0.0310
Breusch Godfrey LM	2.235	0.1349
Breusch-Pagan Heteroskedasticity test	4.24	0.5149
Ramsey RESET	2.52	0.1071

econometric properties, a correct functional form and the model's residuals are serially uncorrelated, normally distributed and homoscedastic. Hence, the results reported are valid for reliable interpretation. The key regression statistics and the diagnostic test statistics are given below. The relatively low value of the adjusted R - square (0.50) for the ARDL models indicates the low level of the overall goodness of the models, which makes it not as satisfactory as models with other higher R square values. This can be explained by the limited data points included and the few variables used in the model.

The diagnostic test results show that the model passed the test for normality and serial dependence (tested with the Breusch-Godfrey LM test). The model also passed the Ramsey RESET test for misspecification by not rejecting the null hypothesis. This test indicates that this model does not suffer from misspecification and no non-linear values can help to explain the response variable. However, the results indicate that heteroscedasticity exists in both of the models. Since the time series constituting both the equations are of mixed order of integration, i.e., I (0) and I (1), it is natural to detect heteroscedasticity.

The cumulative sum of squares of recursive residuals (CUSUM) plots show the blue line within the boundaries on both graphs in the appendix. The CUSUM and CUSUMSQ plotted against the critical bound of the 5 per cent significance level show that the model is stable over time. Thus these graphs indicate the absence of any instability of the coefficients, suggesting that the parameters of the model do not experience any structural instability during the period examined.

5.5 Interpretation and Findings

Several studies have focused on SEE transition growth and provided possible explanations why the SEE transition economies did not become the economic powerhouse they were expected to become (Bartlett 2009; Bevan and Estrin 2000; Horvat 2004). Academics in this area of research have attributed the low growth rate of SEE transition economies to its weak institutions (De Melo et al. 2001; Campos and Kinoshita 2008). The main aim of this study is to investigate to what extent other factors than weak institutions and the initial conditions in transition economies have had a significant effect on economic growth. Considering the neo-classical growth theory argued in Section 3, the economy's long-run growth is dependent on changes (exogenous factors on the capital-labour ratio), such as saving, technological progress, population and capital depreciation (Solow 1956; Swan 1956). Thus, the objective in this paper is to understand which factors make changes that affect the long-term growth in a transition economy. The analysis in the previous section highlights the factors that affect long-term and short-term economic growth.

Since neo-classical economic theory predicts that countries with different per-capita income converge over time, the author's second objective is to explore this convergence amongst transition economies (Swan 1956). Reviewing the literature, it can be argued that this 'absolute convergence' does not take place amongst transition economies. As argued in Section 3, economies tend to converge to their steady state, meaning that their long-run economic growth will be stable, but this is not the case in the Macedonian context.

This furthermore relates to the argument in Section 3 that the 'neo-classical growth theory' argues for short-run growth by accumulating physical capital and long-run growth reached through changes in the exogenous factors mentioned before. Therefore, the paper's third objective is to explore short-run and long-run growth, what factors influence them and to what extent they are different. In light of these theoretical assumptions supported by the neo-classical economic growth theory, the results presented in the previous table are discussed here. By highlighting the factors that influence short-term growth and those that influence long-term growth, and by providing discussion around the theoretical background of this paper, the author brings forward the results of this analysis and moves the discussion toward linking these findings to possible policy recommendations.

As argued previously, the benefits of using an ARDL model include the ability to investigate the effects of macroeconomic determinants in the long and short runs. The short-run ARDL analysis indicates the significance of one variable – the openness of the economy towards foreign markets. The other macroeconomic determinants do not indicate any statistical significant relationship with GDP. This demonstrates the importance of liberalisation policies in the Macedonian economy and the opening up of the market to exports and imports with other countries in the short term.

Based on the ARDL analysis in the long run it can be concluded that only two variables out of the five variables included in the model are statistically significant in the long run. The rest of the variables might have an influence on GDP change in the long run, but are not shown to be significant based on the specific model used in this study. This supports Sachs's (1996) argument that the sum of policies (referred to as an aggregate index) are those which bring significant results, whereas when these reforms are regarded

separately, they show mixed results related to the significance of the coefficients (Aziz and Wescott 1997). Therefore, the more structural and liberalisation reforms are implemented in a country, the higher the increase of its growth performance (Berg and Pattillo 1999). However, in order to understand the effect of each variable on GDP from the analysis above, the author approaches these variables separately but at the same time attempting to present an 'aggregated' interpretation of the results.

According to the long-run results presented above, the openness of Macedonia (presented by the OPEN variable) has a positive significant impact on GDP in the long run. This long-run result is consistent with the theoretical discussion, since one of the main pillars of the economic reform program suggested by the IMF is based on trade liberalisation and market openness. This positive significant relationship with GDP demonstrates that as the country increases its trade openness with other economic partners, the GDP grows as well. In addition, population has a positive and significant impact on overall GDP growth in the long run. Thus, the increase of the population in Macedonia positively affects GDP primarily through the increase of human capital and labour. Based on the insight of this analysis, policies focusing on liberalising the market and opening the economy to trade with other countries have a positive effect on Macedonian economic growth, and with the increase of the population the labour rate of Macedonia increases, which positively affects the productivity function through human capital.

5.6 Limitations of the Study

From a technical stand point, it is important to distinguish a number of limitations. The study is based on a data set that is constructed from the publications of the NBM, IMF and SSORM. The reliability and accuracy of that data will therefore affect the robustness of the results of the present study. All efforts have been made to ensure the accuracy of the data, but this potential data problem remains. Considering the fact that this study investigates a context that provides a limited number of annual data points, the author has adjusted the study. In other words, according to Leybourne et al. (2005), the Augmented Dickey – Fuller (ADF) test has good size and power properties when it is compared with other tests. Considering the fact that the data consists of only 21 points, the author has taken advantage of the ADF test since it requires a much shorter sample size than the conventional unit root test to attain the same statistical power. Moreover, the ARDL procedure provides other benefits that have assisted in overcoming the limitations of this study related to its small sample size. The ARDL procedure does not require all the variables in the system to be of an equal order of integration (as do other techniques, such as Johansen co-integration). Thus, this means that the ARDL can be applied irrespective of whether underlying regressors are purely I(0), I(1) or mutually co-integrated (Ozturk and Acaravci 2011). Furthermore, other co-integration techniques require larger sample sizes for validity, which is not the case for the ARDL procedure. The benefit from this co-integration technique is the fact that it provides a statistically more significant approach to determine the co-integration relation in small samples. The multicollinearity issue continues to exist even though the author has tested for collinearity and has excluded some of the variables that are highly correlated with the rest of the variables in the model.

From a contextual perspective a number of issues are relevant here. One is the influence of institutional development in Macedonia. As argued by the literature, the weak institutions in transition economies are a relevant factor that influences the further development of these economies and their growth (Bocchi 2008; Giannetti and Ongena 2009; Hoskisson, Wright, Filatotchev and Peng 2013). There are a large number of studies that have focused on investigating the relationship between institutional development and growth in transition economies, but these studies use cross-country analysis (Beck and Leaven 2006; Bevan et al. 2004). These studies either use the institutional development index based on data from 18 different institutions and follow the theoretical construction of the index by Kaufman, Kray and Mastruzzi in 2004 (Beck and Leaven 2006) or use an institutional development index constructed by the European Bank for Reconstruction and Development, to which they have access (Bevan et al. 2004). Therefore, the institutional development factor was not taken into consideration because of the unavailability of the data.

Another aspect that is significant when analysing the growth of transition economies is their initial conditions (Berg and Pattillo 1999; Fischer and Sahay 2000; Havrylyshyn 2001). Again, due to the specificity of the context analysed in this paper, including initial conditions was impossible. This is again related to the unavailability of data. Moreover, before Macedonia's independence and the formation of the official SSORM, the country was part of the Yugoslav Federation, during which macroeconomic data was available at the Federal level rather than for each individual Republic. Thus, comparing the period before the country's independence and after this is not possible due to the limitations of the data. Through the comparison of

the pre- and post-independence conditions, it would have been possible to determine the initial conditions with which the country was faced with during its independence and to include variables in the model that would reflect these initial conditions.

The quantitative analysis in this paper assisted in understanding the effects of specific macroeconomic determinants on GDP growth and the exploratory powers of the specific quantitative model. To the best of the author's knowledge this study is one of the first studies to specifically consider the role that economic reform plays in a transition economy, and the potentially different effects that it may have on the policy implications in such an economy. Aside from its limitations, this paper contributes to the wider debate of growth and reform by shedding light on specific policies that have a significant effect in the Macedonian transition economy.

6. CONCLUDING SUMMARY

By using the Pesaran, et al. (2001) auto regressive lag model (ARDL), the author provided an explanation of the extent to which traditional mainstream economic variables influence economic growth in Macedonia. The author took a pre-existing ARDL model used in another transition economy in order to investigate to what extent the widely used economic determinants explain economic growth in Macedonia. By shedding light on the explanatory power of mainstream economic variables to explain economic growth, the author provides an understanding on the factors that constrain growth in the Macedonian context.

The ARDL model used in this analysis assisted in determining the long-run significant relationship between the economic determinants and GDP. The analysis demonstrates the way statistically significant variables affect GDP, as well as which variables are not statistically significantly correlated with GDP. This suggests ways how policies can be improved based on the findings from the analysis above. However, it must be considered that the model as any other has its own limitations, which derive from the data used and the context for which it is implemented.

It should be underlined that the variables that have proven to not have a significant impact on GDP through the above analysis should not be dismissed, or that the model is wrong and does not have sufficient explanatory power. The author argues that the combination of the macroeconomic determinants used in the model above provide insight into how the Macedonian GDP can be explained through the limited data available. It is significant to highlight that Macedonia, being a small open economy that has become independent only 25 years ago, does not provide researchers with a great amount of data points and diversity of variables. More specifically, the data points used in this study cover a period of 21 years (1993 - 2014). Thus, the data the author has used for this analysis has proven to be limiting with regard to the richness of the findings. The data collected through official resources and the National Bank of Macedonia is also limited in terms of the diversity of the available data. Some of the variables were not included in the model because they simply are not available for the Macedonian economy.

The main focus of this study was on exploring how the process of economic reforms and transition of the Macedonian economy affected economic growth through the increase of its GDP. This paper highlighted the trade reforms implemented in the Macedonian economy and tested the effect of macroeconomic determinants on Macedonian GDP by using an Autoregressive distributed lag (ARDL) model. Having provided an initial analysis by considering the variables used in other mainstream economic models and data available for the Macedonian economy, this chapter shed light on the effect of traditional economic policies on economic growth. Therefore, the above discussion indicates that the findings are quite revealing and there is a need to conduct such an analysis in view of each country's unique characteristics. Since the main aim of this study was to investigate the links between trade liberalisation reforms and growth, this study has served its purpose and is a good contribution to the literature, particularly with regard to Macedonia.

Based on these research outcomes the following policy implications can be drawn: the most important task of the government in Macedonia is to further introduce trade liberalisation reforms to improve and increase export earnings by following an export-led growth strategy. This strategy for export diversification must be adopted to attain the best possible outcomes.

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THE STABILITY OF LONG-RUN MONEY DEMAND IN WESTERN BALKAN COUNTRIES: AN EMPIRICAL PANEL INVESTIGATION

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Abstract

The goal of this paper is to examine the stability of money demand (M1) in five Western Balkan countries using quarterly data from 2005Q1 to 2014Q4. The dynamic ordinary least squares – DOLS method was used to find the long-run relationships in a money demand model. The empirical results identify the long-run money demand relationship among real M1 nominal interest rate, exchange rate, inflation and a dummy variable for the effect of the European debt crisis. The estimated long-run coefficients are, respectively -0.086, 0.519, 0.002 and 0.030. Our findings imply that real money demand in Western Balkan countries was stable in the analyzed period.

Keywords: *money demand, cointegration, dynamic ordinary least squares, stability, Western Balkan countries*

JEL classification: *C32, E41, E52*

1. INTRODUCTION

Money demand is one of the most important components of monetary policy transmission mechanisms in a market economy. According to Cziraky and Gillman (2006), a stable money demand allows for better predictions of monetary policy effects on interest rates, output, and inflation, and reduces the possibility of an inflation bias.

The importance of the money demand function has encouraged a wide range of economists to empirically study its determinants. But, while money demand literature has focused on developed countries, there have been relatively few studies examining the money demand function in transition countries and especially in Western Balkan countries (namely, Albania, Bosnia and Hercegovina, Croatia, Macedonia and Serbia). These countries in the past two decades have been undergoing a transition from a centrally-planned to a market economy, and reforms for monetary policy implementation have been part of this process.

Similar to other economies, the Western Balkan region was affected by the collapse of global demand that followed the Lehman Brothers bankruptcy in September 2008. However, after the rather sharp drop of output in 2009, all five economies recovered quickly in 2010. Then, under the impact of the European debt crisis, the Western Balkan countries experienced a double-dip recession in 2012. They have recovered

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slowly and the exit from recession was especially hard for Serbia and Croatia (Croatia recorded negative growth rates for the whole period 2011-2014).

Thus, the main objective of this paper is to estimate a long-run money demand function in **selected** Western Balkan **countries**. Because the selected countries are transition economies and have to manage enormous structural changes, it is difficult to obtain data for a longer period. The estimated parameters, which are based on a short period, are not very reliable. Evidently, estimates for long-run parameters require more data for a long period. Alternatively, the sample can be extended if the information of all countries is pooled (Dreger, Reimers, and Roffia 2007). This is done by panel integration and cointegration techniques (Banerjee 1999). Specifically, the procedures of Pedroni (2000), Mark and Sul (2003) are used to get efficient estimates of the long-run parameters.

The structure of the paper is as follows. After the Introduction, Section 2 reviews the literature on empirical findings relevant to the determinants of money demand. The sources for the data used as well as methodology are presented in Section 3. Section 4 presents the empirical results and section 5 concludes the paper and gives policy recommendations.

2. LITERATURE REVIEW

There are only several papers on money demand in Western Balkan countries, including Anusic (1995), Sonje (1999), Babic (2000), Maravić and Palić (2005), Kalrla (1998), and Kjosevski (2013). We will briefly review some of these papers.

Maravić and Palić (2005) analyzed the long-term and short-term money demand in Serbia for the period January 1996 to March 2005, using a Johansen cointegration technique and VECM model. As an indicator of the real money demand they use real M1. The cointegration analysis shows that there is a strong cointegration relationship between real money, overall economic activity, inflation and interest rate on deposits in dinars. The short-term model (ECM) suggests that the most important determinants of real money demand are inflation and exchange rates. Their analysis finds that the interest rate on dinar deposits is not a statistically significant determinant and does not have a significant impact on money demand. The results of the empirical analysis suggest that money demand was unstable in the analyzed period.

Among the first analyses that explore the demand for money in Croatia are Anusic (1994), Sonje (1999), Babic (2000). Anusic (1994) employs the method of ordinary least squares, using monthly data from January 1991 to November 1993. The results of the study indicate that the main determinants of money demand in a period of hyperinflation in Croatia were inflation and real economic activity, while the interest rate has no significant impact on the demand for money. On the other hand, Sonje (1999), analyzed money demand in the period after hyperinflation, proving empirically that inflation no longer had a significant effect. In his study, Babic (2000) also suggests that inflation is not a statistically significant variable and has no impact on the demand for money in Croatia.

Karla (1998) estimates the relationship between money, inflation, prices, exchange rate, and interest rate in Albania during 1993-1997, using a parsimonious error correction model. She finds that in the long run there is a positive relationship between the price level and the exchange rate, and between real money demand and exchange rate expectations, interest rates and the level of economic activity.

Kjosevski (2013) applies a Johansen cointegration technique and VECM model to estimate money demand in the Republic of Macedonia, using monthly data from January 2005 to October 2012. The empirical results in his paper provide evidence that exchange rate and interest rate payable on *denar* time deposits up to one month explain most variations in money demand in the long-run, while the interest rate is significant only in the short-run. His findings show that real money demand M1 in the Republic of Macedonia was stable in the analyzed period.

Ivanov, Petkovski and Naumovska (2015) also investigate the money demand estimations in Macedonia for the period from 2002 to 2012, using a cointegration approach. They applied a broader measure of money demand (M2 aggregate) and found that the estimated income elasticity was less than unity (0,81) and consistent with previous studies in the case of Macedonia. Their results imply that the M2 aggregate may serve as a proper policy indicator.

However, these studies are country-specific studies, and not panel studies. Panel based studies represent an improvement in this respect by exploiting additional information that results from the inclusion of the cross-sectional dimension.

There is only one study Ozturk and Acaravci (2008) that examines a portion of the Western Balkans countries (Bulgaria, Croatia, Macedonia and Romania), to our knowledge. These authors estimate the demand for M2 for a panel of 10 transition countries (Bulgaria, Croatia, Czech Republic, Hungary, Macedonia, Poland, Romania, Russian Federation, Slovak Republic and Ukraine) using data from 1994-2005 with feasible generalized least squares. The results show that the demand for money and quasi money (M2) is positively

related to real GDP and negatively to inflation rate and the real effective exchange rate. The estimated common long-run income elasticity for the ten transition economies is about unity.

The main contribution of this study is to provide new insights into the origins, characteristics and consequences of long-run determinants of money demand in Western Balkan economies. Namely, most studies focus on individual country cases, and to the author's knowledge there are none for this region. Moreover, the existing panel studies (Kumar 2010; Nautz and Rondorf 2011) usually consider only several variables (e.g. income, prices and a measure of the opportunity costs) in the money demand equation. However, in the period of transition exchange rate can also play a crucial role in explaining money demand. Namely, during periods of high inflation, the Western Balkan countries experienced a partial replacement of domestic by foreign currencies, either as a store of value or a medium of exchange. Also, all selected countries from the Western Balkans are "small" open economies, and foreign trade liberalisation during the transition process has therefore affected country behaviour with respect to their demand of foreign and domestic financial assets. These countries could switch more easily between foreign and domestic currencies. This may have affected money holdings in these economies. Therefore, the exchange rate is likely to be an important factor in explaining money demand behaviour in these countries and will be used in the analysis.

3. MODEL SPECIFICATION AND DATA

Following earlier works on the money demand function such as Arango and Nadiri (1981), Stock and Watson (1993), Ericsson (1998) and Mark and Sul (2003), the empirical model of the money demand can be summarized by the following function:

$$\frac{M}{P} = F(Y, OC) \tag{1}$$

where M denotes nominal money, P price level, Y a scale variable representing the transaction volume in the economy and OC denotes the opportunity costs of holding money.

Before crossings to identify potential determinants of money demand it is necessary to identify the dependent variable. Different authors use different measures for money in their studies. In the literature, a narrower concept of money supply is often used for economies with a relatively underdeveloped financial systems (Payne 2003; Skrabic and Tomic-Plazibat 2009). Bearing in mind the current development of the banking and financial systems in the Western Balkan countries, as a measure for money in these paper we use the M1 monetary aggregate, which covers currency in circulation and sight deposits. We then deflate M1 with the consumer price index (CPI) to get the measure of the real money balance of M1. The use of a narrow monetary aggregate has several other advantages. First, M1 is a good measure of liquidity in the economy, since it consists mainly of financial assets held for transaction purposes. Second, the central bank is able to control this aggregate more accurately than broader aggregates, such as M2 and M3 (Dobnik 2011). Third, M1 definitions tend to be relatively consistent across countries and therefore allow straight comparisons (Bruggeman 2000).

Some authors indicate that using GDP as a measure of economic activity leads to overestimation of the level of transactions in the economy and suggest alternative measures, such as the level of consumption (Mankiw and Summers 1986) or the index of industrial production (Payne 2000; 2003; Skrabic and Tomic-Plazibat 2009). Judd and Scadding (1982) show that the search for an alternative measure of the transactions level does not lead to improvement in the money demand function estimate. For the purposes of our study we follow Payne (2000, 2003), Skrabic and Tomic-Plazibat (2009) and use an index of industrial production. For this variable we expect a positive association with money demand.

According to Payne (2003), the exchange rate is an important factor for money demand in transition economies. However, the effect of the exchange rate on money demand is not entirely clear. On the one hand, in a monetary model of the exchange rate, a depreciation of the domestic currency is likely to induce extra demand for domestic goods from abroad, and an induced rise in domestic production implies higher domestic inflation rate and a need for more money in the economy as the amount of transactions increases (Komárek and Melecký 2001). Hence, the effect of the exchange rate in the model should be positive. On the other hand, according to the currency substitution approach by Calvo and Rodriguez (1997), depreciation reduces confidence in the domestic currency, thereby lowering money demand via a substitution effect with foreign money. Hence, its coefficient should be negative. According to the above mentioned studies, the real exchange rate effect is ambiguously related to money demand. It should be noted that as a determinant of the exchange rate in this paper we use the nominal exchange rate of domestic currencies per Euro.

To measure opportunity cost we use a nominal (domestic) short-run interest rate from the Central Banks of the selected countries. We used interest rate on central bank bills, i.e. the rates that they pay to commercial banks. We could not use the interest rates on bonds, because central banks do not issue longer term financial instruments. We choose this variable because according to Ericsson (1998) long-run rates should not be included in the model for money demand when one uses the M1 monetary aggregate. Also, Komárek and Melecký (2001) suggest that the portfolio motive of holding such money plays only a minor role relative to the transaction motive. For this variable, we expect a negative correlation between central banks short run interest rates and money demand.

The next variable used in our research is the inflation rate. It is used to measure the monetary stability of the country. This variable is expressed by annual increase in CPI (annual percentage base 2005 = 100). We follow Valadkhani (2008), Ozturk and Acaravci (2008) and Dobnik (2011), who although including inflation in real M1, also included this variable as an independent determinant.

The negative impact of inflation had been widely documented in previous research, such as Hosein (2007), Mehrotra (2008), Dreger and Wolters (2009). Therefore, we also expect a negative relationship with money demand. Given the variables specified above, we construct a panel data regression model as shown below. The real money demand and exchange rate were transformed into natural logs.

$$L(\mathrm{M1}_i / CPI_i)_t = \sum_{i=1}^{n=5} \alpha_{0i} + \beta_1 (IIPS_i)_t + \beta_2 L(EXRS_i)_t + \beta_3 (NIRATE_i)_t + \beta_4 (INFS_i)_t + \beta_5 (DUM_i)_t + \beta_6 (DUM1_i)_t + \varepsilon_{it} \quad (2)$$

where,

i denotes a specific country varying from 1 to 5, *t* is time starting from January 2005 to December 2014;

M1t / CPI*t* = Real money (M1 deflated with consumer price index CPI);

IIPS=Index of industrial production (base 2005=100) (seasonally adjusted);

EXRS= Exchange rate of domestic currencies per euro (seasonally adjusted);

NIRATE=Nominal interest rate

INF = Rate of inflation. (base 2005=100) (seasonally adjusted);

DUM =effect of the 2008/09 global economic crisis;

DUM1= effect of the European debt crisis;

ε_{it} is a white noise error process;

In order to capture inter-country heterogeneities one can use the fixed effects model, which allows to α_0 vary across countries by estimating different intercept terms (α_{01}, α_{02}, ...α_{05}).

For our research we focus on factors that determine money demand in five countries from the Western Balkans (namely, Albania, Bosnia and Hercegovina, Croatia, Macedonia and Serbia). In order to obtain more observations we used quarterly data from 2005Q1 to 2014Q4. The choice of the countries and the time periods in this paper was contingent upon the availability of time series data on all the variables included in the model. A portion of the abovementioned determinants, including the index of industrial production, exchange rate and inflation, are seasonally adjusted using the Tramo-Seats method. We also follow Kjosevski (2013) in our empirical model by including two dummy variables. With DUM we mark the global economic crisis, which has a value of 1 for the period from October 2008Q3 to December 2009Q4, and 0 for other periods. DUM1 marks the European debt crisis, with a value of 1 for the period from January 2011Q1 to December 2012Q4, and 0 for all other periods. We choose this period to mark European debt crisis because in the period 2011Q1-2012Q4, the European debt crisis had the strongest impact on the countries in our sample, when they experienced a double dip recession. After that, they recovered at different rates, with the exit from recession especially hard for Serbia and Croatia.

Data are obtained from various sources. Data for the dependent determinant M1 is obtained from the websites of the Central Banks of selected countries. The index of industrial production, the consumer price index and inflation are taken from the websites of state statistical offices and the World Bank. Nominal interest rates and the exchange rate of domestic currency per Euro are also taken from the websites of the central banks for the selected countries.

3.1. Panel unit root test

Before proceeding to cointegration techniques, we need to verify that all variables are integrated with the same order. According to Campbell and Perron (1991), the standard unit root and cointegration tests can have low power against stationary alternatives for the important cases, Therefore, gains in power are expected, and more reliable evidence can be obtained. In the paper, the IPS (Im, Pesaran and Shin 2003), Fisher-Type test using ADF and PP-test (Maddala and Wu 1999) tests are applied. These procedures allow for deterministic and dynamic effects differing across the panel members.

In our study we prefer Fisher-type tests because they have more advantages: (1) the cross-sectional dimension can be either finite or infinite; (2) each group can have non-stochastic and stochastic components; and (3) the time-series dimension can vary for each cross-section (Baltagi 2001). Also, the advantage of the Fisher test is that unlike the IPS test, it does not require a balanced panel, and allows the use of different lag lengths in the individual ADF regression. Nevertheless, we will also report the results of the IPS tests in order to provide an additional check for robustness.

3.2. Panel Cointegration Test

The concept of cointegration has been widely used in the literature to test for the presence of long-run relationships among variables. Similar to individual unit root tests, cointegration tests in the time series literature suffer from low power when the time horizon is short. Panel techniques may be better in detecting cointegration relationships, since a pooled level regression combines cross-sectional and time series information in the data when estimating cointegrating coefficients.

Pedroni (1995) concentrated on the homogeneity of the two simple variables in his first analysis. Nonetheless, it has some limitations. As a result, Pedroni (2000) developed seven test statistical test models to test the null of no cointegration (Panel v statistic, panel rho-Statistic, Panel PP-Statistic, Panel ADF-Statistic Group rho-Statistic Group PP-Statistic Group ADF-Statistic). Pedroni (1995) showes that in terms of testing power, the group-ADF statistic has the best performance in general, followed by the panel-ADF. The panel-variance and group-ρ statistics performed poorly in comparison. The Schwarz Information Criterion (SIC) has been used to determine the optimal lag length (qi) based on the Newey-West method for bandwidth selection using the Bartlett kernel, with individual intercept and trend included.

3.3 Panel long-run model

If variables in the empirical model are nonstationary and cointegrated, the next step in this study is to establish a long-run equation for money demand and its determinants.

For the long-run model in this study we employ the dynamic ordinary least squares DOLS procedure developed by Stock and Watson (1993). The DOLS estimator corrects standard OLS for bias induced by endogeneity and serial correlation. First, the endogenous variable (IIPS, EXRS, NIRATE and INF) in each equation is regressed on the leads and lags of the first-differenced regressors from all equations to control for potential endogeneities. These leads and lags are used for adjustment and to improve the estimation results. Next, unit root tests are performed on the residuals of the estimated DOLS regression, in order to test whether it is a spurious regression. Finally, the OLS method is applied using the residuals from the first step regression.

The DOLS estimator is preferred to the non-parametric FMOLS estimator because of its better performance. According to Wagner and Hlouskova (2010), the DOLS estimator outperforms all other studied estimators, both single equation estimators and system estimators, even for large samples. Furthermore, Harris and Sollis (2003) suggest that non-parametric approaches such as FMOLS are less robust if the data have significant outliers and also have problems in cases where the residuals have large negative moving average components, which is a fairly common occurrence in macro time series data. Also, Stock and Watson (1993) prove that, as opposed to other estimators, the DOLS procedure does not require that all the individual series in a long-run relationship be integrated of order one, I(1), as it is also applicable to systems involving variables of different orders of integration (as is the case with the selected variables in our model). In our case, we can write the Stock-Watson DOLS model as follows:

$$Y_{it} = \alpha_i + \beta X_{it} + \sum_{j=-q}^{p} c_j \Delta X_{i,t+j} + \varepsilon_{it} \qquad (3)$$

where i =1, …… N refers to each country in the panel and t =1, …….T, denotes the time period

Yt is the dependent variable

α are individual fixed effects

X is a matrix of explanatory variables

β is a cointegrating vector; i.e., representing the long-run cumulative multipliers or, alternatively, the long-run effect of a change in X on Y

ε_{it} are the error terms,

p is the lag length of the first differenced of the explanatory variables

q is the lead length of the first differenced of the explanatory variables

When using panel data estimation, choosing between fixed effects and random effects is crucial. The intercepts α_i in Equation (3) stand for the parameters that are estimated for each cross-section in a fixed effects estimation, whereas they are assumed

Table 1: Unit root tests

Test Variable	IPS		ADF-Fisher Chi square		PP-Fisher Chi square	
	Level	First Difference	Level	First Difference	Level	First Difference
LM1	-0.84608 (0.1988)	-7.48786 (0.0000)	13.3796 (0.8730)	71.1520 (0.0000)	16.3288 (0.906)	116.2651 (0.0000)
IPIS	-1.08198 (0.1396)	-8.88858 (0.0000)	116.8903 (0.0768)	887.0884 (0.0000)	26.2494 (0.0034)	160.649 (0.0000)
LEXRS	-1.63711 (0.9492)	-10.0055 (0.0000)	1.73037 (0.9882)	88.8547 (0.0000)	2.48150 (0.9626)	124.738 (0.0000)
NIRATE	-0.53388 (0.2967)	-4.37852 (0.0000)	17.3096 (0.0678)	34.2094 (0.0000)	11.0350 (0.3548)	56.9744 (0.0000)
INF	-2.08980 (0.0183)		22.2726 (0.0137)		31.9360 (0.004)	

Source: Authors' calculations

to be randomly drawn from a certain distribution in random effects estimation. When the sample size consists of a specific set of countries, like a sub-sample of Organization for Economic Cooperation and Development (OECD) countries, fixed effect estimation is appropriate, whereas when the sample size includes randomly chosen countries all around the world, random effect estimation is more suitable (Baltagi 2005).

Therefore, in this study we will choose fixed effects to estimate the parameters in Equation (3). In order to remove the serial correlation, we estimate the long-run covariance by applying the Bartlett kernel and select the leads and lags based on the Akaike information criterion following the suggestion of Kejriwal and Perron (2008).

Next, we examine the structural stability of the error correction model of money demand using the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMQ) of the recursive residuals test, following Brown et al. (1975). These tests are commonly used by authors who explore the demand for money (Bahmani-Oskooee and Shin 2002; Owoye and Onafowora 2007). Both the cumulative sum and the cumulative sum of squares statistics lie within 5% of critical values, suggesting the long-run model's stability.

4. EMPIRICAL RESULTS AND DISCUSSION

In Table 1 we can see the results from the unit root tests. The IPS, ADF and PP-test indicate stationarity at the first differences for the real money. For the Index of industrial production, IPS and both Fisher-type tests, the ADF and PP-test, indicate stationarity at the first differences. For the exchange rate of domestic currency per Euro the IPS test indicates stationarity at level, while only the PP-Fisher test indicates that the interest rate was stationary at level. The nonstationarity of the first differences is always rejected at the five percent level for the IPS and both Fisher-type tests. For the last variable in the model, inflation, only the PP Fisher test indicates stationarity at level. These results allow for the testing of cointegration among the variables and the estimation of money demand functions.

Next, the panel cointegration results in Table 2 show that among the seven panel statistics, the null hypothesis of no cointegration is rejected by six of the seven test statistics at a 1% level of significance. Therefore, we may conclude that there is a cointegration relationship among the variables.

Table 2: Pedroni panel cointegration test

Tests	Statistic	Probability
Panel v-Statistic	-1.654186	0.9510
Panel rho-Statistic	-2.688491	0.0036
Panel PP-Statistic	-15.62080	0.0000
Panel ADF-Statistic	-2.627339	0.0043
Group rho-Statistic	-2.327758	0.0100
Group PP-Statistic	-24.37897	0.0000
Group ADF-Statistic	-2.428900	0.0076

Source: Authors' calculations

Due to the fact that the variables included in the model are nonstationary and cointegrated, the dynamic ordinary least squares-DOLS is adopted in this study. The results of DOLS are reported in Table 3.

Table 3: Long-Run coefficients of money demand in Western Balkan countries

Independent variables	Coefficient	Standard errors	P-value
IPIS	0.001	0.22	0.44
NIRATE***	-0.086	0.07	0.00
LEXR***	-0.519	0.03	0.01
INF**	0.002	0.08	0.06
DUM	-0.153	0.33	0.46
DUM1**	0.030	0.05	0.08
Country-specific intercept			
Albania	15.18	0.01	0.00
Bosnia and Herzegovina	14.45	0.03	0.00
Croatia	12.32	0.01	0.00
Macedonia	13.19	0.05	0.00
Serbia	15.30	0.01	0.00
	0.98		
Jarque-Bera normality test	7.521		0.15

*,**and***indicates the test statistic is significant at the 10%, 5% and 1% level.

Source: Authors' calculations

Regarding the nominal interest rate, this study finds that a larger opportunity cost of holding money is connected with lower real balances. More precisely, the nominal interest rate has a statistically significant impact on real money of -0.08, ceteris paribus, where the negative sign is consistent with theory.

The coefficient on the effective exchange rate is negative and statistically significant. The results indicate that when possible, depreciation of the exchange rate is expected, returns from holding foreign currency will decrease, which will reduce the demand for money. This relationship between money demand and exchange rate is also consistent with the work of Bahmani-Oskooee and Shabsigh (1996), who argued that if a depreciation of domestic currency results in an increase in expectations of further depreciation, the public may decide to hold more foreign currency and less domestic money. The significance of this determinant in the model is confirmed by the high degree of euroization in the selected countries.

The positive sign of the coefficient of inflation was not expected. This sign of this coefficient in our case can be explained by the lack of alterantive assets, which makes currency in circulation, deposits and real assets almost the only possible means of holding wealth.

The results of the second dummy variable is in line with the result of Kjosevski, (2013). The coefficient is statistically significant and indicates a 0.03 higher demand for real M1 money, solely as a result of the European debt crisis. This result is not surprising, because according to Kjosevski (2013), the European debt crisis and lack of confidence in the Euro triggered a rebound in the demand for domestic currency.

The coefficient of determination is high and explains 98% of the variance of the independent determinants. The model also passes the Jarque-Bera normality test, suggesting that the residuals are normally distributed.

Since we are particularly interested in whether the estimations achieved are stable over time and therefore useful for forecasting purposes, we proceed with CUSUM and CUSUMQ tests. The result of the test statistics for evaluating the vector stability is presented in Figure 1.

Based on the CUSUM test results, we can say that the demand for $M1$ monetary aggregate in countries from the Western Balkan is predictable and can be used for the effective implementation of monetary policy. The result of the CUSUMQ test shows that $M1$ demand functions were unstable at the end of 2012 and at the beginning of 2013, which may imply that the European debt crisis did have a significant impact on the demand for money in the Western Balkan countries. However, this impact on stability was temporary, as stability of the *M1* demand is not rejected after the second quarter of 2013. Further, M1 stability is not rejected in the whole-sample period. These results confirm that long-run money demand is stable in the Western Balkan countries.

Figure 1: CUSUM Statistics

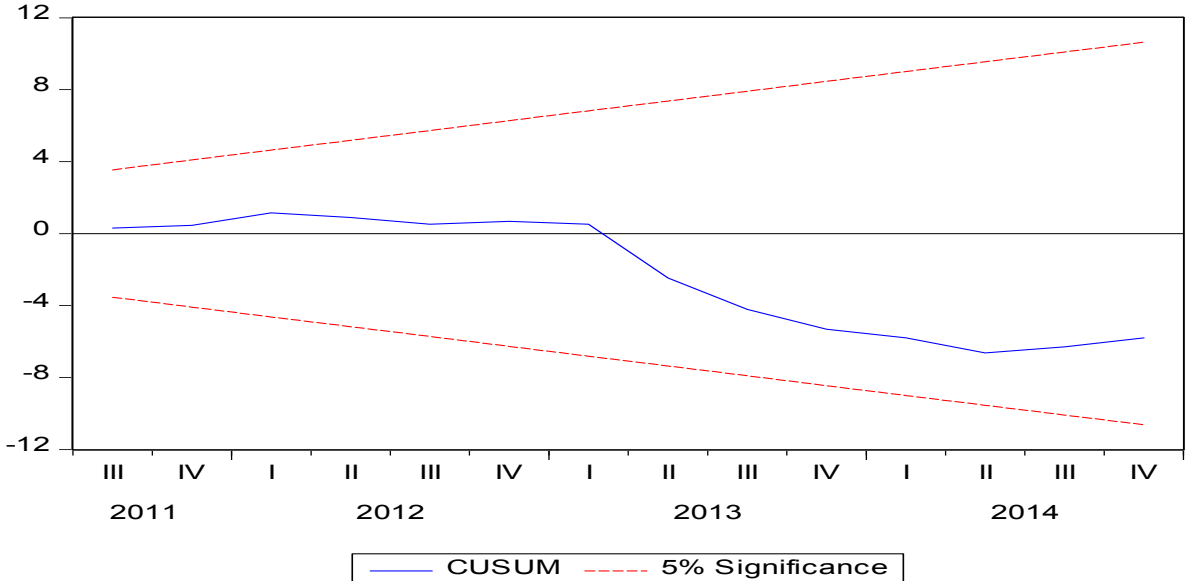
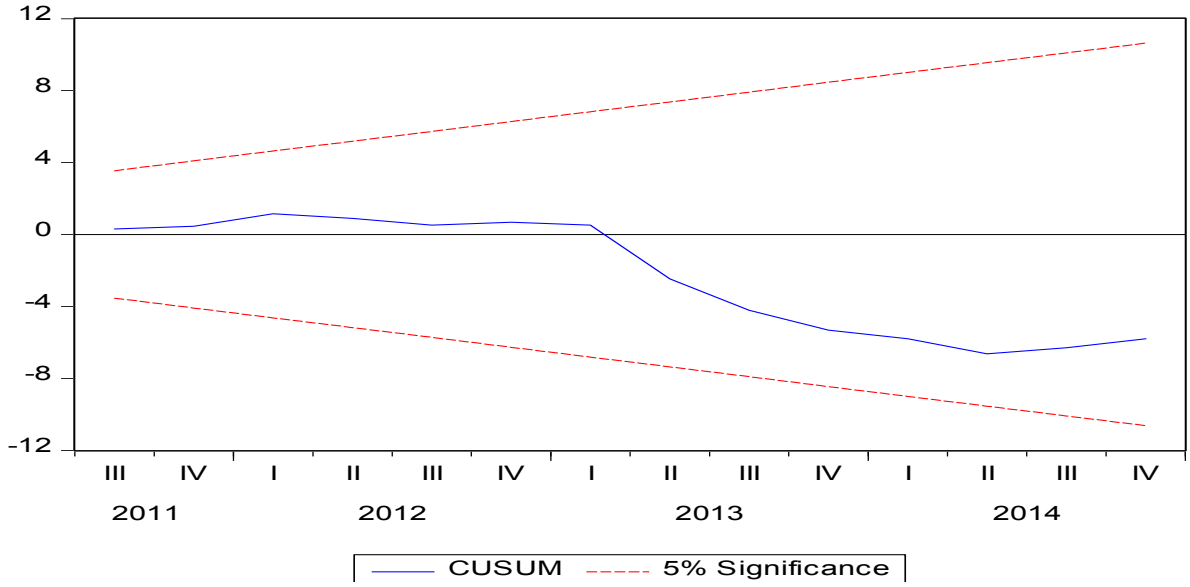


Figure 2: CUSUMQ Statistics



5. CONCLUSIONS

Based on the results presented, the hypothesis that the estimated coefficients in the long-run model are stable could not be rejected. The research results indicate that the main forces affecting money demand in the selected Western Balkan countries are the nominal interest rate, the exchange rate of domestic currencies per the Euro and the European debt crisis, which explain most of the variations in money demand in the long run.

This is the first empirical study to analyze money demand in the Western Balkan region, to our knowledge. It complements the existing economic literature by analyzing the determinants of money demand in the five countries from the Western Balkans.

The main constraint of this study is the lack of available data on selected determinants for longer periods. The existence of a long-term series of data would enable obtaining more accurate and more reliable results. In addition, future research and analysis should include other monetary aggregates, such as the M2

and M3. Also, future research may include other determinants, such as interest rates on long-term domestic and foreign currency deposits, and interest rates on treasury bills. Econometric techniques that researchers could use in the future should be either a two or three least squares method, the generalized method of moments or the autoregressive distributed lag (ARDL).

The results obtained in this paper can provide useful policy guidelines to central banks in their quest for price stability. The central banks of the selected Western Balkan countries should carefully monitor the exchange rate as a leading monetary policy indicator, because this determinant is among the most important drivers of money demand both in the short run and the long run.

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AN EMPIRICAL ANALYSIS OF STOCK MARKET DEVELOPMENT AND ECONOMIC GROWTH: THE CASE OF MACEDONIA[1]

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Abstract

This paper has two goals. The first goal is to investigate the influence of stock market development on economic growth for a group of 14 transition economies from the Central and South-East European (CSEE) region in the period 2002-2012, while the second is to analyze the main characteristics and specificities of the stock market in the Republic of Macedonia. To fulfil the first goal, we apply panel regression models (fixed and random effects) and a dynamic panel model (Generalized Method of Moments – GMM), while we use a single country approach and comparative analysis to examine the main characteristics of the Macedonian stock market. The estimated results indicate that stock market development is positive and significantly correlated with economic growth. Additionally, the comparative analysis of the stock market in the Republic of Macedonia suggests that the Macedonian stock market is still underdeveloped and faces a number of challenges before it can enter a new phase of development after the negative impact of the global financial crisis. Those challenges include capital market regional integration and the harmonization of legal and institutional frameworks such as bankruptcy procedures, accounting and reporting standards, public sector regulatory bodies, corporate governance and a liberalized trade regime.

Key words: *Stock markets development, economic growth, Central and South-East European countries, Republic of Macedonia.*

JEL: *E44, F3, F36, G15.*

1. INTRODUCTION

The existing theoretical and empirical literature related to finance and economic growth suggests that the financial sector has a significant positive influence on long-run economic growth (King and Levine 1993; Beck et al. 2005; 2008; Beck, Levine and Loayza 2010). The first stream of literature focused on the role of the

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banking sector in fostering economic growth, while recent empirical studies have provided insights on the importance of financial markets for economic growth.

The majority of empirical studies that look beyond the relationship between finance and growth were based on using an array of different cross-country panel regression techniques. However, recent research has addressed the important nonlinearities in the relationship between finance and growth. There is evidence that the effect of financial development is strongest among middle-income countries, whereas other studies find a declining effect from finance and growth as countries grow richer (Aghion et al. 2005; Arcand, Berkes and Panizza 2011; Beck et al. 2012).

Even though the analysis of the relationship between finance and economic growth in the Central and South-East European (CSEE) countries may be very interesting and useful for policymakers, given that some countries in this region have succeeded in establishing effective financial sectors while others have been delayed in this process during the transition and post-transition periods, there is still a lack of a sufficient number of studies in this field of research. Moreover, the findings that the finance-growth link may depend on the level of GDP per capita, and the fact that the financial systems of transition countries are relatively new and reforms for enhancing their efficiency have varied widely across the transition countries, provided additional inspiration for expanding the empirical literature related to the CSEE region.

In that context, the main aim of the paper is to investigate the relationship between stock market development as an integral part of the financial sector and economic growth for a group of transition economies from the Central and South-East European (CSEE) region in the period 2002-2012. The time period taken for observation is a relatively homogenous period, a stabilization phase of the post-transition process, including the effects of the global economic crisis. We have not included the transition period when the first progress in the development of financial system was achieved in order to eliminate the potential biases that arise from the effects of privatization on financial markets. We concentrate on the economically-driven activities within stock market development in the post-transition period and the process of reforming the financial system based on capitalist principles. To fulfil the main aim of the paper, we apply panel regression models (fixed and random effects) and a dynamic panel regression model (system GMM). The estimated results of panel regression analysis indicate that stock market development is positive and significantly correlated with economic growth in the CSEE countries in the period under analysis.

The second goal of our research is to analyze the main characteristics and specificities of the stock market in the Republic of Macedonia as a transition country by a single-country comparative analysis approach. The main findings of stock market development comparative analysis in the Republic of Macedonia suggest that the Macedonian capital market faces a number of challenges before it can enter a new phase of development after the negative impact of the global financial crisis. Those challenges include capital market regional integration and the harmonization of legal and institutional frameworks such as bankruptcy procedures, accounting and reporting standards, public sector regulatory bodies, corporate governance and a liberalized trade regime.

2. STOCK MARKET DEVELOPMENT AND ECONOMIC GROWTH

2.1. Literature review of stock market and economic growth

The existing theoretical and empirical literature related to finance and economic growth has reached a consensus that the financial sector has a significant positive influence on long-run economic growth. Greenwood and Jovanovic (1990), Levine (1991), Bencivenga and Smith (1991) have built theoretical models wherein efficient financial markets improve investment quality and enhance economic growth. According to the model of Greenwood and Jovanovic (1990) financial markets allocate investment funds to the most profitable projects by identifying information about investments characterized by the highest rate of return, while in the model of Levine, Bencivenga and Smith (1991) financial markets improve firm efficiency by eliminating the premature liquidation of firm capital, increase firms' access to finance, and increasing the proportion of resources allocated to firms.

Generally there are many channels through which the financial sector (bank and capital market) affects economic growth. Financial intermediaries (commercial and investment banks, insurance companies, and pension funds) and financial markets (stock and bond capital markets) can increase saving rates, reduce information and transaction costs, improve resource allocation and investment efficiency through well-known financial intermediation functions such as risk and liquidity management, fund pooling, screening and monitoring (King and Levine 1993; Levine 1997).

A number of studies empirically analyze the relationship between financial sector development and

economic growth (Levine 1997; Thiel 2001; Wachtel 2001). For instance, King and Levine (1993) found positive effects from financial sector development on growth by applying a cross-country regression study for 80 countries. All four proxy variables (the amount of liquid liabilities divided by GDP, the importance of commercial banks in relation to the central bank when allocating credit, the ratio of credit allocated to private enterprises to total domestic credit, and credit to private sector divided by GDPs) used in their paper somehow measure the size of banking sector. Atje and Jovanovic (1993) found a significant positive effect of the stock market on economic growth by extending the basic MRW (Mankiw et al. 1992) model with the ratio of annual value of stock market trades to GDP as a stock market development proxy variable by using 94 developed and developing countries for the period 1970-1988. Demirguc-Kunt and Levine (1996a), Singh (1997), Levine and Zervos (1998) found that stock market development plays an important role in predicting future economic growth, as well as in promoting the current economic growth. Moreover, Allen and Gale (2000) stressed the fact that financial markets promote innovative projects and long-run economic growth.

However, the cross-country regression approach has been criticized for ignoring the large differences between countries (Arestis and Demetriades 1997) and other problems related to cross-country regression analysis (Judson and Owen 1999). To address some of the econometric problems associated with cross-country growth analysis, including reverse causation and omitted variables bias (Arrelano and Bond 1991; Levine, Loayza and Beck 2000; Beck, Levine and Loayza 2000) used the Generalized Method of Moments (GMM) for panel data. The results in these papers were very similar to those obtained earlier in pure cross-country analyses.

Even though the institutional context and other specificities related to stock markers among transition economies vary widely (Okičić 2014), there have not been a sufficient number of papers examining the effects of the size and efficiency of financial systems on these economies. Among the existing papers focusing on transition countries, Koivu (2002) investigated the effects of the banking sector on economic growth with special focus on almost all CEE transition countries by using data for the period 1993-2000. The paper found that the margin between lending and deposit interest rates negatively and significantly affected growth, but the size of the financial sector had no effect. Moreover, Fink, Haiss and Vuksic (2009) found that financial intermediation measured by domestic bank credit to the private sector accelerated economic growth in nine EU accession countries, including seven CEE countries, for the period 1996-2000. At the same time, Mehl, Vespro and Windler (2006) found that financial deepening had no significant effects on the growth of South-Eastern European countries for the period 1993-2003. Other relevant studies include Masten, Coricelli and Masten (2008), who investigated the relationship between financial integration and economic growth in a sample of European countries for the period 1996-2004, and Eller, Haiss, and Steiner (2006), who examined the impact of financial sector and foreign direct investment on economic growth for 11 Central and Eastern European countries in the period 1996-2003.

The majority of these studies analyzed the impact of financial intermediation on economic growth in the CEE countries by focusing on the banking sector, with little attention paid to financial markets. In that context, the main contribution of this paper is evidence based on an investigation of stock market contributions to economic growth for the study's sample of CSEE countries.

2.2. Research Methodology Framework and Estimation Results

A variety of econometric approaches have been used to analyze the relationship between financial sector and economic growth. While earlier papers were focused on a cross-country methodology (King and Levine 1993), most recent studies are based on a panel econometric approach (Baltagi 2008) where several data specifications and methods are used. Starting form pooled OLS or fixed effects controlling for country specific effects (Fischer et al. 1998; Berg et al. 1999) to various instrumental variable methods, such as 2SLS and 3SLS methods (Falcetti et al. 2002; Dragutinović and Ivančev 2010) and dynamic panel (system GMM) methods (Staehr 2005; Falcetti et al. 2006; Josifidis et al. 2014) there are plenty of empirical studies that investigate the growth determinants in developed, developing and transition countries.

The first question here is which model should be applied, considering the sample and time period used in the empirical estimation. To identify which econometric model (fixed or random effects) is more appropriate in our case, a Hausman test has been run. The null hypothesis is that the differences in estimated coefficients between fixed and random models are not systematic (Green 2008). This test tries to answer whether the unique errors (ui) are correlated with the regressors and whether the unobserved individual effect embodies elements that are correlated with the regressors in the model (Baltagi 2008; Stock and Watson

2003). The estimated results of the Hausman test indicate that we cannot reject the null hypothesis (Prob> chi2 = 0.6948). Hence, we can conclude that there is not systematic difference in the estimated coefficients obtained by fixed and random models, so both methods might be applied. However, both models are not able to deal with several econometric problems, including endogeneity, omitted variable and error measurement problems that make the estimated results not fully convenient and reliable, and as a result might produce biased results. Moreover, the time period under observation in our empirical analysis is too short (covering the period from 2002 to 2012), under the threshold of 20 observations. Hence, to make the results more reliable, we decided to apply a dynamic panel (system GMM) regression model or Arrelano-Bond estimator (Judson and Owen 1999) as the most appropriate model.

The general form of the empirical growth equation based on a GMM estimator has a lagged dependent variable on the right-hand side:

$$g_{it} = \alpha g_{it-1} + \beta X_{it} + \gamma O_{it} + \chi CMD + \varphi I_{it} + \mu_{it} + u_{it}$$

$$i = 1,.....,\ N; t = 1,.....,\ T \qquad (1)$$

where, g_{it} is the annual rate of economic growth in country i over t, g_{it-1} is the lagged value of the annual rate of economic growth, i.e. the lagged dependent (endogenous) variable that allows for the dynamic structure of the model. The symbol, X_{it}, contains macroeconomic factors (inflation rate, bank sector development, and foreign direct investment) that vary over i and t; O_{it}, is openness, I_{it} is the investment rate measured by the fixed capital accumulation, while CMD_{it}, is the stock market capitalization as proxy variable for stock market development, an interest variable in our model. This general specification contains individual (unobservable country-specific) effects, μ_{it}, along with the independently identically distributed stochastic disturbance term u_{it}, $u_{it} \approx IID(0, \sigma_u^2))$.

The main sources of data about the rate of economic growth as a rate of real GDP per capita, investment rate measured as a ratio of fixed capital formation relative to GDP, level of openness, annual inflation rate and net inflows of foreign direct investment (FDI) are the *World Development Indicators database* of the World Bank and the *International Financial Statistic* based on the International Monetary Fund, while the data about bank credit to private sector as a percentage of GDP, stock market capitalization as a percentage of GDP, stock total value traded, stock market turnover ratio, and stock price volatility are taken from the *Global Financial Development Indicators database* of the World Bank.

The empirical estimation is based on a sample of 10 SEE countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Moldova, Montenegro, Romania, Serbia and Slovenia) and 4 CEE countries (Hungary, Slovak Republic, Poland and the Czech Republic) over the period of 2002 to 2012. The dataset constructed in the empirical study is based on the availability of dates for all of the variables included in the empirical study.

The following table presents descriptive statistics for the main variables in our empirical study.

Table 1: Descriptive statistics and variable descriptions

	Variable	Mean	Stand. dev.	Min.	Max.	Obs.
Economic growth	The rate of economic growth of real GDP, %	3.89	4.80	-14.8	14	N = 165
gBank credit	Growth rate of bank credit to private sector, %	3.27	5.33	-12.16	30.21	N = 146
gOpenness	Growth rate of Openness (sum of export and import divide by GDP), %	2.41	10.32	-33.1	43.84	N = 136
Investment Rate	Fixed capital accumulation, % of GDP	0.06	2.56	-8.33	9.74	N = 146
gFDI	Growth rate of Foreign direct investment net inflows, %	0.09	0.84	-4.60	3.81	N = 144
Inflation Rate	Inflation rate, %	5.67	4.46	-1.15	25.23	N = 165
WGI	WorldWide Governance Indicators	0.17	0.58	-0.71	1.02	N = 165
gStock market development	Growth rate of stock market capitalization, %	0.43	8.85	-38.92	38.19	N = 169

Source: Authors' calculation

The descriptive data show that there is substantial difference in economic growth, bank credit growth, inflation rate, FDI growth rate, investment rate and capital market growth across countries and over different time periods. This is expected because of the fact that the transition countries have experienced different growth paths and macroeconomic performance in the boom period before the global financial crisis and post-crisis period.

The estimated results of the growth models (fixed, random effects model and system GMM) that investigate the relationship between capital market development and economic growth for the sample of 14 CSEE countries in the 2002-2012 periods are reported in Table 2 below.

According to the estimated results based on GMM as the most appropriate method for this empirical investigation of growth determinants with a special focus on

Table 2: Estimated results by fixed effects, random effects and GMM model

DEPENDENT VARIABLE: Economic growth	Fixed effects model (1)	Random effects model (2)	System GMM (3)
INDEPENDENT VARIABLES:			
Economic growth			0.262***
L1.			(0.000)
Investment rate	0.946***	0.970***	0.642***
	(0.000)	(0.000)	(0.000)
gForeign direct investment	0.940***	0.826**	1.089***
	(0.000)	(0.044)	(0.000)
gOpenness	0.041	0.047	0.094***
	(0.253)	(0.199)	(0.001)
gBanking sector development	0.071	0.195*	0.007
	(0.290)	(0.103)	(0.885)
Inflation rate	-0.008	-0.014	-0.066
	(0.933)	(0.897)	(0.390)
gStock market development	0.111***	0.106***	0.113***
	(0.001)	(0.004)	(0.000)
Institution quality		-0.320	0.087
		(0.752)	(0.911)
Constant	3.346	4.522	2.551
	(0.000)	(0.000)	(0.000)
Hausman test (Ho: difference in coefficients not systematic) Prob>chi2	0.6948		
Breusch-Pagan Lagrange test for random effects (Ho:variances across entities is zero) Prob> chi2		0.0196	
Wald (chi2) statistics and F-test for fixed effects	19.36	131.73	307.83
	(0.000)	(0.000)	(0.000)
Sargan test (Ho: instruments are valid)			196.83
			(0.0633)
Observation	146	146	127
Number of countries	14	14	14
R-adjusted	0.516	0.426	

Note: ***statistical significance at the 1% level, **significance at the 5% level, *significance at the 10% level (in parenthesis are p values). GMM with robust standard errors is applied. Instruments used for level equations are lagged first differences of growth rate, bank credits, FDI, inflation rate, investment rate, openness and capital market development. Instruments for the first-differenced equations are lagged values of growth rate, bank credits, inflation rate, investment rate, openness and capital market development and FDI dated t-2 and earlier.

Source: Authors' calculation

the relationship between stock market development and economic growth, investment rate and FDI are the main drivers of economic growth. In particular, a percentage point increase in investment rate increases real GDP by 0.642 percentage points, while a percentage point increase in FDI increases real GDP by 1.089 percentage points. In addition, banking sector development is not found to be a significant growth determinant, which is not in accordance with previous empirical studies, while the existing findings of the empirical literature on growth determinants indicate that the banking sector is positively related with the growth rate. This can be explained by the negative effects of the global financial crisis on economic growth and the transmission channels of the crisis, especially for those CSEE countries that were more financially integrated with developed EU countries (Bartlett and Prica 2011). At the same time, the results did not find a significant influence from inflation rate as a proxy variable for macroeconomic in (stability) on the growth rate. On the other hand, our findings suggest a positive and statistically significant impact from trade openness on economic growth, which corresponds with the general growth theory and empirical studies. According to the estimated results, institutional quality as measured by the World Wide Governance Indicators does not a significant influence on economic growth. Finally, the main findings of the empirical study suggest a positive and significant relationship between capital market development and economic growth. The estimated results based on GMM show that a 1 percentage increase in stock market capitalization increases real GDP per capita by 0.113 percentage points. This result indicates that capital market development positively affects economic growth in the CSEE countries. These findings can be useful for policymakers in the process of creating policy that will not concentrate only on the banking sector, but will at the same time stimulate the development of capital markets so as to accelerate long-run economic growth.

Several post-estimation tests have been conducted in order to verify the estimated regression results. According to the Wald statistics and F-test for fixed effects models the coefficients of the explanatory variables in all three models are statistically different than zero, indicating that the explanatory variables included matter for economic growth.

The validity of the estimated results obtained by applying a GMM estimator is checked by the Sargan test for over-identifying restrictions (Sargan 1975). Rejecting the null hypothesis implies that the set of instruments is not valid and reconsideration of the instruments or the model is necessary. However, we have accepted the null hypothesis that the instruments are valid, so we can conclude that the estimated results by applying a dynamic panel (GMM) are reliable.

The main limitation of this empirical study is the short time period and the sample of countries, which do not include all of the transition countries from the CEE region. In addition, in terms of future research, the choice of a proxy variable for stock market development presents another limitation. Stock market capitalization is not a fully appropriate proxy variable for stock market development because it includes a potential price bubble effect that might produce biases in measuring the real stock market development based on extending the number of listed companies on financial markets.

4. THE MAIN CHARACTERISTICS OF THE CAPITAL MARKET IN THE REPUBLIC OF MACEDONIA

The stock market in the Republic of Macedonia has seen considerable development since the first part of its second decade of transition. Stock market capitalization defined as the value of domestic equities traded on the stock market relative to GDP has increased from 3.1 percent of GDP in 2002 to about 23.5 percent of GDP in 2007, achieving a new peak. However, the rapid development of the stock market was mainly the result of stock market trading that occurs in only several stocks that account for a considerable part of the total market capitalization. Beyond these actively traded shares, there are serious informational and disclosure deficiencies for other stocks, and serious weaknesses in the transparency of transactions on the market.

After rapid stock market growth in the period 2002-2007, the global financial crisis had dramatically negative impact on the capital market in the Republic of Macedonia (stock market capitalization decreased from 23.5 present in 2007 to 5.1 present in 2012). Table 3 presents the main indicators of the stock capital market (stock market size, depth, and market stability) in the 2002-2012 period.

Not less important is stock market depth, which refers to liquidity or the ability to buy and sell shares, and measures the activity of the stock market using total value traded as a share of GDP, giving the value of stock transactions relative to the size of the economy. This measure is also used to gauge market liquidity because it measures trading relative to economic activity (Levine and Zervos 1998).The stock value traded increased from about 1 percent of GDP in 2002 to 4.2 percent of GDP in 2007. To clearly understand the liquidity picture, we examine the turnover ratio. The turnover ratio is defined as the ratio of the value of total shares traded and market capitalization.

Table 3: The main characteristics of stock market development in the Republic of Macedonia

Year	Stock market capitalization to GDP (%)	Liquid liabilities to GDP (%)	Stock market total value traded to GDP (%)	Stock market turnover ratio (%)	Stock price volatility
2002	3.1	24.2	1.0	24.6	n.a
2003	6.1	24.3	0.5	3.8	n.a
2004	7.4	26.3	0.4	8.1	n.a
2005	8.8	29.7	1.0	18.3	n.a
2006	13.4	29.6	2.1	22.2	n.a
2007	23.5	30.7	4.2	26.8	n.a
2008	19.6	31.4	3.6	8.1	23.5
2009	9.1	36.5	1.1	7.2	26.3
2010	8.2	37.6	0.5	4.7	24.8
2011	6.2	37.8	0.4	8.0	16.0
2012	5.8	37.3	0.4	5.6	11.0

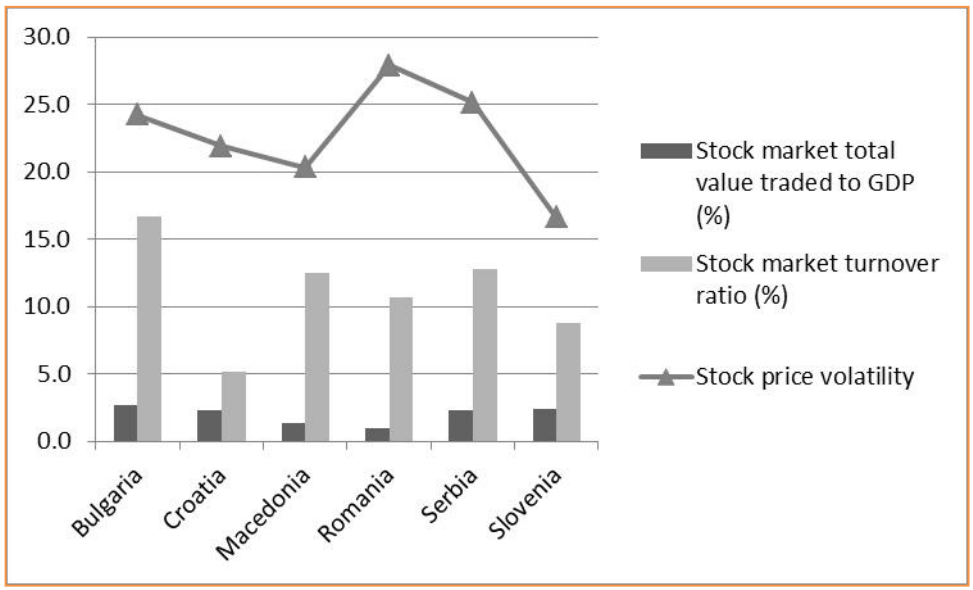
Source: Global Financial Development Indicators, World Bank

It measures the activity of the stock market relative to its size. Many analysts use the turnover as a measure of transaction costs. A high turnover ratio implies low transaction and consequently high efficiency. The turnover ratio increased from under 4 percent in 2003 to about 27 percent in 2007. It has since fallen to less than 6 percent in 2012.

Figure 6 shows a ranking of stock market capitalization in several SEE countries. As we can see, Croatia and Slovenia have the most developed capital markets in the region, while Macedonia's capital market is less developed. A similar conclusion could be drawn if we analyse liquid liabilities as a percent of GDP (also known as M3) as an indicator of financial development as a whole (the sum of currency and deposits in the central bank (M0), plus transferable deposits and electronic currency (M1), plus time and savings deposits, foreign currency transferable deposits, certificates of deposit, and securities repurchase agreements (M2), plus travelers checks, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents).

The comparative analysis of stock market depth and stability, including several SEE countries, is made to complete the picture of the stock market performance across the countries in the region. As we can see from Figure 2, Bulgaria and Serbia are characterized as countries with the most stock market depth

Figure 1: Stock market capitalization and liquid liabilities to GDP (2002-2012)



Source: Global Financial Development Indicators, World Bank

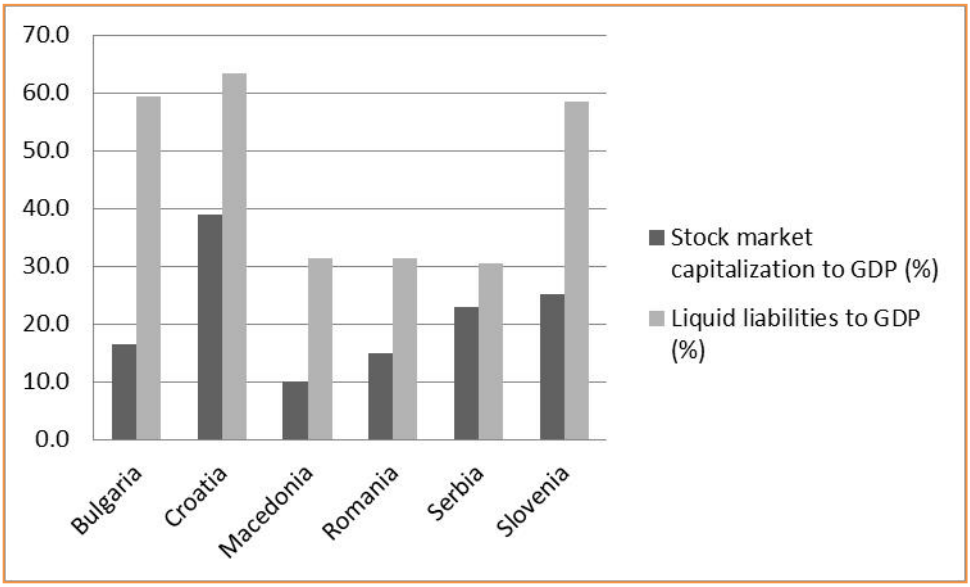
(stock market total traded value and market turnover ratio). Additionally, Macedonia and Romania have higher market turnover ratios than Croatia and Slovenia, though they have significantly less stock market total traded value, indicating that stock market traded value is not tied to market turnover ratio in the case of the analysed SEE countries. Moreover, the data about stock market price volatility show that countries with more volatile stock markets have higher stock market value traded, indicating that stock market investment is motivated by speculation for earnings and extra profit from price volatility [Figure 2].

Finally, in this sector we compare the development of the banking sector vis-à-vis the stock market development. Today, the German financial system dominates in the Republic of Macedonia, as well as everywhere throughout SEE region. Bank credits are the only source of external financing, though most CSEE countries, including the Republic of Macedonia at the beginning of the transition process, tended to support a market-based financial system (Anglo-Saxon system). However, the stock capital market in Republic of Macedonia, as well as in many CSEE countries, had a positive trend in the boom period before the global financial crisis.

The capital market is significantly less than the size of the banking sector. Only in the period before the financial crisis (from 2002 to 2007), when the capital market experienced a significant increasing trend and achieved its peak in 2007 (25.5 present of GDP) was there a convergence in the size of bank sector measured by the volume of domestic bank credits to the private sector (37 present of GDP).

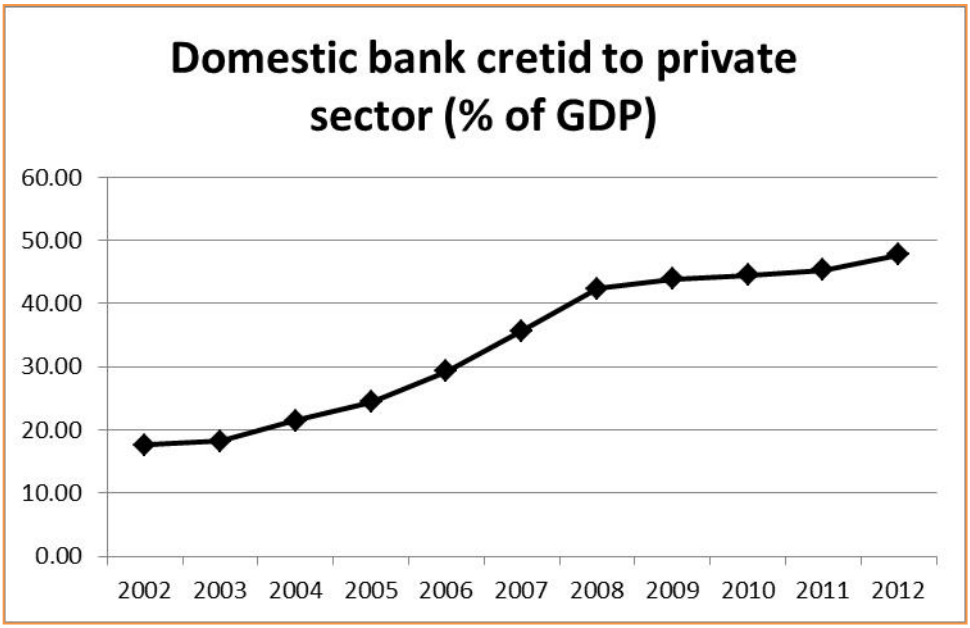
However, the capital market boom has slowed down as a result of the financial crisis and in 2012 it is near to its initial level from 2002 (5.7 present of GDP), while the bank sector reached its peak in 2012 (47.7 present of GDP). These give us an argument that the stock market boom in the Republic of Macedonia in the period from 2002 to 2007 was temporary and primarily determined by stock market trading occurring in only a few stocks (driven by speculative motives). Hence, if a country wants to enter into a new phase of capital market development, several polices should be implemented to address institutional weaknesses.

Figure 2: Stock market depth and stock market (in)stability (average 2002-2012)



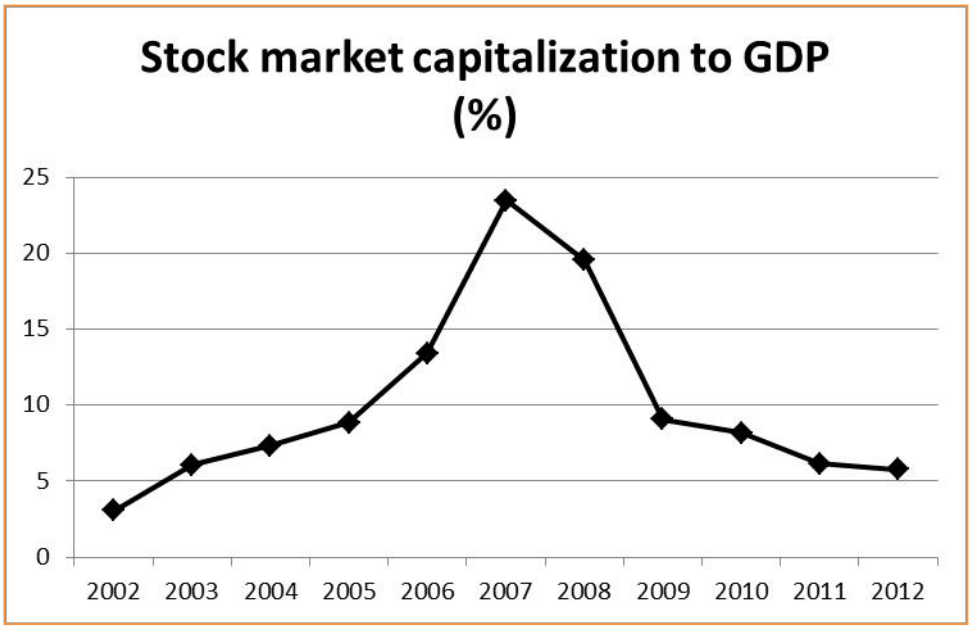
Source: Global Financial Development Indicators, World Bank

Figure 3: Banking sector development in the Republic of Macedonia (2002-2012)



Source: Global Financial Development Indicators, World Bank

Figure 4: Stock market development in the Republic of Macedonia (2002-2012)



Source: Global Financial Development Indicators, World Bank

5. CONCLUSION

The first aim of this paper is to examine the effects of stock market development as an integral part of a financial system on economic growth for a sample of 14 CSEE transition countries in the 2002-2012 periods. We used a dynamic panel econometric (system GMM) estimator as a method to address well-known problems plaguing past studies of the finance-growth nexus, such as endogeneity and omitted variable bias derived from unobserved country-specific effects. As a consistency check, we also used panel fixed and random models. The estimated results suggest that stock market development is positively associated with economic growth. More importantly, the positive impact of stock market development on economic growth is not due to potential biases induced by omitted variables, simultaneity or reverse causation. The majority of the estimated results related with growth determinants (net inflows of foreign direct investment, the degree of trade openness) are in accordance with the main findings of previous empirical studies, with the exception of banking sector development, which is not significant growth determinant in our models.

The second goal of the paper is to analyse the stock market (stock market size, stock market depth and stock market stability) in the Republic of Macedonia and to investigate stock market determinants by applying a single country approach and cross-country comparative analysis. The results indicate that Macedonia has an underdeveloped stock market, though there was rapid growth in the period before the global financial crisis. In that context, the paper identifies that the Macedonian stock market faces a number of challenges before it can enter a new phase of development after the negative impact of the global financial crisis. The first is the challenge of capital market regional integration. Several efforts have been made for the regionalization of capital markets in South-East Europe as an efficient way of addressing the problem of low liquidity. Preconditions for successful regional approaches include harmonization of the legal framework such as bankruptcy procedures, accounting and reporting standards and a liberalized trade regime.The second is the challenge of demutualization to solve governance and profitability problems. The third and most critical issue is the need to eliminate existing impediments to institutional environment. These include a wider dissemination of information on these markets, the implementation of robust electronic trading systems, and the adoption of central depository systems. In addition, sound legal and accounting frameworks, corporate governance, private sector credit evaluation capabilities, and public sector regulatory bodies should all be strengthened.

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