Business Environment in V4 Countries

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Abstract: *The aim of the article is to investigate the relationship between different indices of the quality of business environment on one side and selected macroeconomic indicators and country's credit rating on the other side. The analysis concentrates on the countries of Visegrad four region (V4) – Slovakia, Czech Republic, Hungary and Poland. The following indices are analyzed: Ease of Doing Business created by the World Bank Group, Global Competitiveness Index, Index of Economic Freedom, rating from The World Competitiveness Yearbook and Fragile State Index. We use the real gross domestic product, unemployment rate and inflation rate as the macroeconomic indicators and the results of the country's credit rating evaluated by Moody's, Standard & Poor's and Fitch Ratings. The analysis is based on the country level data for the 2005 – 2014 period derived from the official statistical reports of World Bank, World Economic Forum, Institute for Management Development, The Heritage Foundation, Fund for Peace and Eurostat. The analysis is performed through correlation analysis using Pearson as well as Spearman correlation coefficients. The results of our analysis indicate that relationship between different indices of the quality of business environment and selected macroeconomic indicators or country's credit rating is country specific.*

Keywords: business conditions, quality of business environment, macroeconomic indicators, country's credit rating, V4 countries

JEL codes: E30, F21, F44

1. Introduction

Business environment can be defined as a set of economic, legal and institutional conditions that affect the firms' behavior in positive or negative way, but usually cannot be controlled by these firms. Demjanová (2009) describes the business environment as business conditions that promote or hinder the creation and development of enterprises.

Many economic studies use the business environment indicators as either the left- or right hand side of regressions. In each case, the authors report patterns that emerge in comparison across countries. In most cases, the concern is whether a particular indicator is correlated with aggregate or firm-level outcomes, or whether, if used as a left-hand side variable, the indicators are correlated with country characteristics, history, or institutions (Besley. 2015). The following literature review illustrates that the results of the studies are mixed.

2. Literature Review

Djankov, McLiesh and Ramalho (2006) found a positive relationship between economic growth and the Doing Business indicator. Similar results we can find in work of Gillanders and Whelan (2014). Their principal finding is that the Doing Business indicator emerges as the key explanatory variable in a wide range of instrumental variables regressions for income per capita and has significant explanatory power for longer-run growth.

The evidence of Bittlingmayer, Eathington and Hall (2005) suggests that for some indexes a business climate ranking predicts positive economic outcomes. They found that indexes more narrowly focused on tax policies are more likely to have positive relationships with growth than are broader measures, but also that indexes with these positive relationships explain little of the variation in economic growth. Kolko, Neumark and Mejia (2013) examined the relationship between a large set of state business climate indexes and state economic growth with focus on growth in employment, total wages and Gross State Product. They presented detailed information on what the indexes capture and analyzed whether they predict economic growth. Indexes focused on productivity do not predict economic growth while indexes emphasizing taxes and costs predict growth of employment, wages and output.

The results of Commander and Svejnar (2011) indicate that widely used country-level indicators of business environment provided by the Heritage Foundation and the World Bank do not provide much evidence of a negative relationship between the constraining environment and firm performance. VanMetre and Hall (2011) examined the relationship between six national indices that are often used as indicator of how “business friendly” is state and entrepreneurial activity among the fifty US states. They found that many of the business climate indices are not useful in explaining entrepreneurial activity and further research is needed to better understand the relationship between these indices and entrepreneurship.

The outlined literature review shows different findings on existence of relation between business climate indices and economic growth. There is also a gap in relevant literature focused on Central European countries in this field. Therefore, the aim of the article is to investigate the relationship between different indices of the quality of business environment on one side and selected macroeconomic indicators and country's credit rating on the other side. The analysis concentrates on the countries of V4 region.

3. Data and Methodology

Following indices of the quality of business environment are analyzed in this paper: Ease of Doing Business (*EoDB*) created by the World Bank Group, Global Competitiveness Index (*GCI*), Index of Economic Freedom (*IoEF*), rating from The World Competitiveness Yearbook (*WCY*) and Fragile State Index (*FSI*). For Ease of doing Business, Global Competitiveness Index and rating from The World Competitiveness Yearbook we used ranking, so that the lower value is better. In case of Index of Economic Freedom and Fragile State Index we used index value (a higher value of these indices means the higher quality of the environment).

We use the real gross domestic product growth rate (*RGDP*), unemployment rate (*Unempl*) and inflation rate (*Infl*) as the macroeconomic indicators and the results of the country's credit rating evaluated by Moody's (*M*), Standard & Poor's (*SP*) and Fitch Ratings (*F*).

The analysis is based on the country level data for the 2005 – 2014 periods in case of the values of the business environment indices. In case of the macroeconomic indicators and country's credit ratings we used data for the 2004 – 2013 periods in order to find out, whether the trends of development of these variables is reflected in the business environment indices. The focus is on four countries of Visegrad region – Slovakia (*SK*), Czech Republic (*CZ*), Hungary (*HU*) and Poland (*PL*). The dataset is derived from the official statistical reports of World Bank, World Economic Forum, and Institute for Management Development, The Heritage Foundation, Fund for Peace and Eurostat. The analysis is performed through correlation analysis using Pearson as well as Spearman correlation coefficients in which values of dependent variables business environment indices in particular period were correlated with values of explanatory variables in previous period.

4. Results and Discussion

Following table 1 shows basic descriptive characteristics and testing statistics of studied variables.

Table 1 Descriptive characteristics and testing statistics of studied variables for V4 countries

Variable	Mean	Std Dev	Median	Min.	Max.	Kolmogorov-Smirnov test	p Value
EoDB_SK	40.40000	5.75809	39.00000	32.00000	49.00000	0.22256354	>0.150
IoEF_SK	68.69000	1.39956	69.45000	66.40000	70.00000	0.29402820	0.015
GCI_SK	55.60000	16.98496	53.50000	32.00000	78.00000	0.19368760	>0.150
WCY_SK	41.20000	6.98888	42.50000	30.00000	49.00000	0.20668322	>0.150
FSI_SK	137.20000	13.62025	143.50000	111.00000	146.00000	0.40987621	<0.010
Unem_SK	13.67000	1.89798	13.50000	9.50000	16.30000	0.18410846	>0.150
RGDP_SK	4.20000	4.50111	5.20000	-5.50000	10.80000	0.17924041	>0.150
Infl_SK	3.13000	2.04072	3.25000	0.70000	7.50000	0.18321204	>0.150
M_SK	14.50000	0.70711	15.00000	13.00000	15.00000	0.36024994	<0.010
SP_SK	15.10000	0.87560	15.00000	13.00000	16.00000	0.35453644	<0.010
Fitch_SK	15.40000	0.96609	16.00000	13.00000	16.00000	0.33271960	<0.010
EoDB_HU	51.00000	6.91215	51.50000	41.00000	66.00000	0.23213749	0.128
IoEF_HU	66.18000	1.32648	66.70000	63.50000	67.60000	0.22423664	>0.150
GCI_HU	53.00000	8.85689	55.00000	39.00000	63.00000	0.21380409	>0.150
WCY_HU	42.80000	5.02881	43.50000	35.00000	50.00000	0.16911822	>0.150
FSI_HU	135.70000	10.43552	141.00000	116.00000	142.00000	0.38722063	<0.010
Unem_HU	8.94000	1.91903	8.90000	6.10000	11.20000	0.22376096	>0.150
RGDP_HU	1.04000	3.35963	1.30000	-6.60000	4.90000	0.22445977	>0.150
Infl_HU	4.82000	1.80296	4.35000	1.70000	7.90000	0.17537614	>0.150
M_HU	12.00000	2.53859	12.50000	9.00000	15.00000	0.18460444	>0.150
SP_HU	10.80000	1.39841	11.00000	9.00000	14.00000	0.34313743	<0.010
Fitch_HU	12.10000	1.79196	12.00000	10.00000	16.00000	0.20774791	>0.150

Variable	Mean	Std Dev	Median	Min.	Max.	Kolmogorov-Smirnov test	p Value
EoDB_CZ	60.90000	12.40475	63.50000	41.00000	75.00000	0.16721573	>0.150
IoEF_CZ	68.91000	2.28106	69.60000	64.60000	72.20000	0.18504331	>0.150
GCI_CZ	36.00000	4.83046	36.50000	29.00000	46.00000	0.16728040	>0.150
WCY_CZ	31.60000	2.67499	31.50000	28.00000	36.00000	0.13446660	>0.150
FSI_CZ	145.30000	14.29102	152.00000	118.00000	155.00000	0.37492608	<0.010
Unem_CZ	6.77000	1.14993	7.00000	4.40000	8.30000	0.27573002	0.030
RGDP_CZ	2.45000	3.70413	2.50000	-4.80000	6.90000	0.15165300	>0.150
Infl_CZ	2.44000	1.60914	2.10000	0.60000	6.30000	0.18367064	>0.150
M_CZ	15.00000	0	15.00000	15.00000	15.00000	--	--
SP_CZ	15.30000	1.25167	15.00000	14.00000	17.00000	0.29471108	0.015
Fitch_CZ	15.60000	0.51640	16.00000	15.00000	16.00000	0.38071099	<0.010
EoDB_PL	61.50000	14.80428	66.00000	32.00000	76.00000	0.21706967	>0.150
IoEF_PL	62.21000	3.07840	61.75000	58.10000	67.00000	0.23251984	0.127
GCI_PL	45.50000	4.99444	44.50000	39.00000	53.00000	0.19165835	>0.150
WCY_PL	42.40000	10.17841	40.00000	32.00000	58.00000	0.23525410	0.116
FSI_PL	140.00000	14.20485	144.50000	113.00000	153.00000	0.35598483	<0.010
Unem_PL	11.49000	4.04240	9.85000	7.10000	19.00000	0.31576606	<0.010
RGDP_PL	4.01000	1.90464	3.80000	1.30000	7.20000	0.12302755	>0.150
Infl_PL	2.90000	1.18415	3.15000	0.80000	4.20000	0.22278636	>0.150
M_PL	14.00000	0	14.00000	14.00000	14.00000	0.52408518	<0.010
SP_PL	13.90000	0.31623	14.00000	13.00000	14.00000	--	--
Fitch_PL	13.70000	0.48305	14.00000	13.00000	14.00000	0.43271960	<0.010

Source: own processing

Tables 2 and 3 show the results of correlation analysis using Pearson correlation coefficients and Spearman rank correlation coefficients. We used both correlations, because Pearson correlation strictly requires that the two variables follow the normal distribution, but Spearman rank correlation does not have such requirement. After checking the data set, we found that according to Kolmogorov-Smirnov test (Table 1) not all the variables are normally distributed. Use of Pearson correlation coefficient showed existence of considerably lot statistically not significant relations. Relatively more statistically significant relations among indices of business environment and macroeconomic indicators of particular country have been detected using Spearman rank correlation coefficient that can indicate existence of rather non-linear relationship between studied variables.

Table 2 Pearson correlation coefficients for V4 countries

	Unempl		RGDP		Infl		M		SP		Fitch	
EoDB_SK	-0.11952		-0.41456		-0.19403		0.16374		0.45399		0.54728	
IoEF_SK	-0.46162		0.24111		-0.41809		0.55576	*	0.35452		0.19229	
GCI_SK	-0.19099		-0.54196		-0.49744		0.22203		0.60068	*	0.76922	***
WCY_SK	0.31552		-0.80284	***	-0.28560		-0.11242		0.41398		0.39824	
FSI_SK	-0.73982	**	-0.23815		-0.54030		0.70375	**	0.66895	**	0.80388	***
EoDB_CZ	-0.72698	**	-0.17979		0.48895		--		0.25977		0.33997	
IoEF_CZ	-0.34002		-0.69743	**	-0.05340		--		0.81219	***	0.86215	***
GCI_CZ	0.27604		-0.52536		-0.11007		--		0.66158	**	0.48998	

	Unempl		RGDP		Infl		M		SP		Fitch	
WCY_CZ	0.64946	**	0.01682		-0.06557		--		0.27212		-0.04826	
FSI_CZ	-0.57815	*	-0.53430		0.10137		--		0.65284	**	0.71064	**
EoDB_HU	0.08795		0.38230		-0.47967		-0.09498		-0.13794		-0.10765	
IoEF_HU	0.64854	**	-0.50792		0.00390		-0.66982	**	-0.76911	***	-0.79839	***
GCI_HU	0.53082		-0.46527		0.05984		-0.63749	**	-0.74459	**	-0.70708	**
WCY_HU	0.80918	***	-0.37039		-0.32671		-0.85295	***	-0.70152	**	-0.84831	***
FSI_HU	0.68034	**	-0.59733	*	-0.10181		-0.67107	**	-0.65175	**	-0.74094	**
EoDB_PL	0.04447		0.62477	*	0.16543		--		0.17800		-0.28744	
IoEF_PL	-0.51090		-0.72715	**	0.01676		--		0.29790		0.71957	**
GCI_PL	0.55557	*	0.72360	**	-0.31187		--		-0.38693		-0.62175	*
WCY_PL	0.83428	***	0.47491		-0.24614		--		-0.50400		-0.89944	***
FSI_PL	-0.84231	***	-0.21684		-0.08257		--		0.66786	**	0.77727	***

Source: own processing

*Notes: Pearson correlation coefficients, ***, **, * denote significance at 1, 5 and 10 % levels, respectively*

Table 3 Spearman correlation coefficients for V4 countries

	Unempl		RGDP		Infl		M		SP		Fitch	
EoDB_SK	0.03049		-0.61587	*	-0.22561		-0.05931		0.45705		0.75012	**
IoEF_SK	-0.36970		0.52727		-0.32121		0.47161		0.20113		-0.27742	
GCI_SK	-0.15152		-0.69697	**	-0.41818		0.12484		0.49935		0.87386	***
WCY_SK	0.31611		-0.85107	***	-0.43161		-0.01739		0.65044	**	0.57739	*
FSI_SK	-0.21474		-0.60741	*	-0.41107		0.12638		0.37914		0.88465	***
EoDB_CZ	-0.70031	**	-0.20061		0.50610		--		0.47338		0.32077	
IoEF_CZ	-0.32318		-0.76970	***	-0.21277		--		0.89893	***	0.85280	***
GCI_CZ	0.14724		-0.60367	**	-0.01529		--		0.58788	*	0.46476	
WCY_CZ	0.57362	*	-0.14025		0.10703		--		0.13566		0.00000	
FSI_CZ	-0.52015		-0.75086	**	-0.04939		--		0.95851	***	0.86603	***
EoDB_HU	0.17847		0.36199		-0.56618	*	-0.26251		-0.44409		-0.38246	
IoEF_HU	0.48632		-0.61212	*	0.13982		-0.62356	*	-0.67858	**	-0.59457	*
GCI_HU	0.52134		-0.66870	**	0.10366		-0.70597	**	-0.75971	**	-0.66471	**
WCY_HU	0.80793	***	-0.46201		-0.25610		-0.84840	***	-0.76658	***	-0.94426	***
FSI_HU	0.92403	***	-0.66172	**	-0.10412		-0.82610	***	-0.50259		-0.82208	***
EoDB_PL	-0.16566		0.57576	*	-0.06667		--		0.29013		-0.26591	
IoEF_PL	-0.34463		-0.63830	**	0.15198		--		0.29101		0.80015	***
GCI_PL	0.50001		0.63416	**	-0.47562		--		-0.35028		-0.57329	*
WCY_PL	0.62964	*	0.48172		-0.46342		--		-0.40867		-0.80260	***
FSI_PL	-0.20924		-0.36474		-0.14590		--		0.52382		0.64774	**

Source: own processing

*Notes: Spearman correlation coefficients, ***, **, * denote significance at 1, 5 and 10 % levels, respectively*

Considering the results of the research, we cannot conclude that there are clear relations among business environment indices and macroeconomic indicators. Reasons can be sought in way of construction of analyzed indices of business environment, because they take into account official macroeconomic data of particular country on one hand as well as rather subjective perception of quality of business environment based on questionnaires on the other hand. Similarly, Körner, Kudrna and Vychodil (2002) argue that the indices are typically set to evaluate different aspects of the business environment and they are able to distinguish between strenghts and weaknesses of country's institutional framework. However, the indices themselves are unable to answer the

question of why some components are better or worse, they also do not answer the question of whether these differences are real, or if it is just the difference in the perception of respondents. This apparent incompleteness can be removed only through deeper penetration into the problem in studies focused on specific countries and in comparative studies.

The most controversial relationships were found among business environment indices and country's credit rating. It can be explained by the fact that rating agencies take into account slightly different and more limited views on the country's business environment especially from riskiness of doing business point of view and they are more rigid in their evaluation that is not changing on regular basis. Business environment indices are more flexible and published regularly on yearly basis. The investors by their decision making on location of their investment usually respect the view of reputable rating agencies more than results of country's evaluation from different nongovernment organizations. Also, the change in country's credit rating can cause significant fluctuations of investment activity. As Ozturk (2014) states, although sovereign credit ratings constitute a small part of the credit rating industry, the impact of unexpected downgrades or upgrades has a huge potential to distort a well-functioning financial system. The rating agencies have recognized this fact and they are quite cautious in changing their evaluation of particular countries. Only in case of Poland, the evaluation through indices of business environment corresponds with country's credit rating. The reasons might be found in the fact that Poland has relatively closed economy in comparison to Slovak economy that is generally considered to be small, open and export-oriented (Bobenič Hintošová, Hliboká, 2015).

We can conclude that such meanings of different private entities often do not correspondent with official macroeconomic view on the environment. Thus, the business environment indices connect "macroview" with more "microview". Different nature of relation among studied variables in different countries might evoke different view of respondents on microeconomic business environment in particular countries. Hence, the relation among business environment indices and macroeconomic indicators are according to us country specific. Similar results can be found in work of Commander and Svejnar (2011) or Besley (2015). Further research in this field, especially from the foreign direct investment point of view and their relationship to business environment indices respectively macroeconomic indicators could prove if the investors by their decision making on their investment abroad are driven by official evaluation of macroeconomic environment or rather by more complex indicators.

5. Conclusion

In our study, we identified the existence of statistically significant relationship among chosen of analyzed indices of the quality of business environment and macroeconomic indicators or country's credit rating in all four countries from Visegrad region. The contradictory relations were found among business environment indices and country's credit rating. We also cannot prove the clear and unambiguous relationship among business environment indices and macroeconomic indicators. According to results of our analysis we can conclude that relationship between different indices of the quality of business environment on one side and selected macroeconomic indicators and country's credit rating on the other side is country specific and it is hardly possible to generalize it. As Besley (2015) states, such differences reinforce the need to look beyond the

aggregate measures and to drill down into specific performances across the indicators. Also a use of panel data analysis would be a useful extension.

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