THE FINANCIAL HEALTH OF HOSPITALS. V4 COUNTRIES CASE

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INTRODUCTION

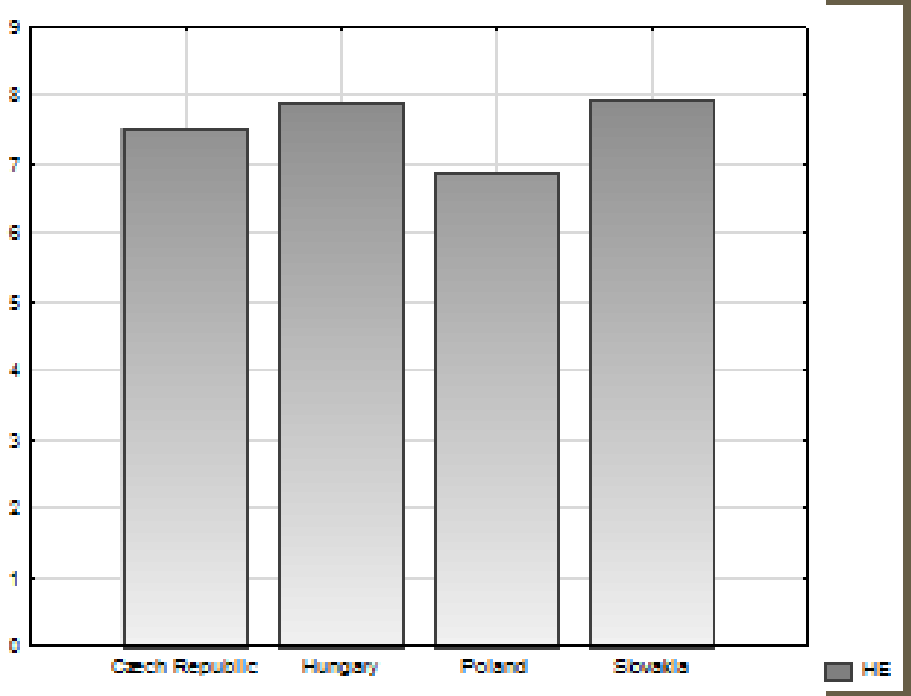
- The health care system's functioning is one of key factors of society's health status
- Hospitals constitute an important part of healthcare system due to higher level of specialization, higher cost
- Hospitals are rensposible for generating of debts in healthcare systems
- There are many indicators, that can be used mesuring the economic situation of hospital - one of them is ROA (return on assets)

HIPOTHESES

- The purpose of our work paper is to analyse the ROA ratio for hospitals in the countries of the Visegrad Group
- We pose several hipotheses:
  - financial health of hospitals do not rely on nonpatient care in V4 countries,
  - systematic hospital risk management for sure reduce costs and make the negative influence on hospital financial health less destroying
- This hipotheses have beemn examined using data coming from hospitals and OECD covering years 2010-2012.

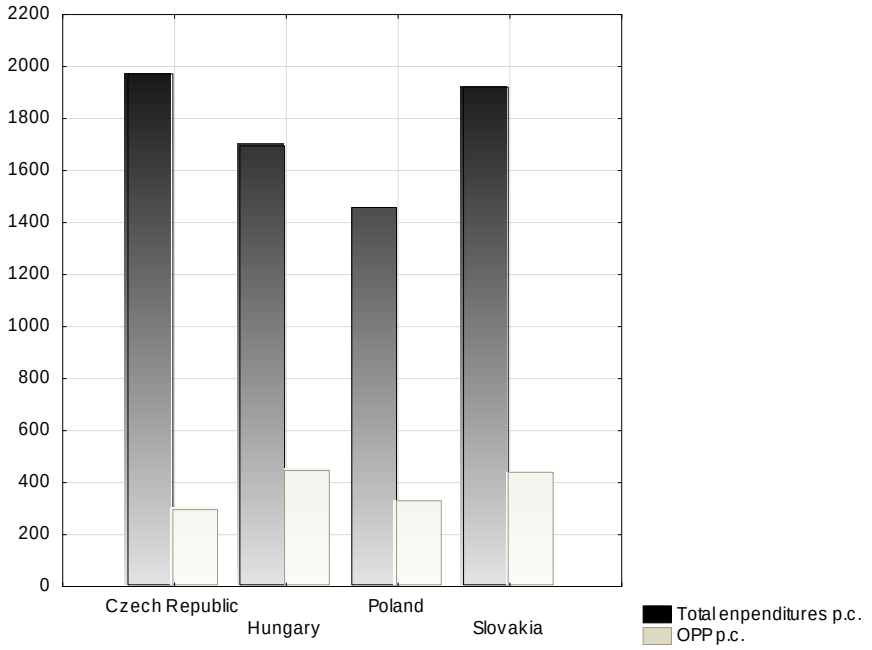
HEALTH CARE SYSTEM IN COUNTRIES OF V4 GROUP

- Despite the economic transition and relatively rapid economic growth, healthcare spending (expressed as a% of GDP) is still relatively lower than in Western European countries and the OECD average (9,3 %GDP in 2011) and varies from 6.9 % GDP in Poland to 7.9% in Slovakia and Hungary with variation coefficient equal to 6,5%



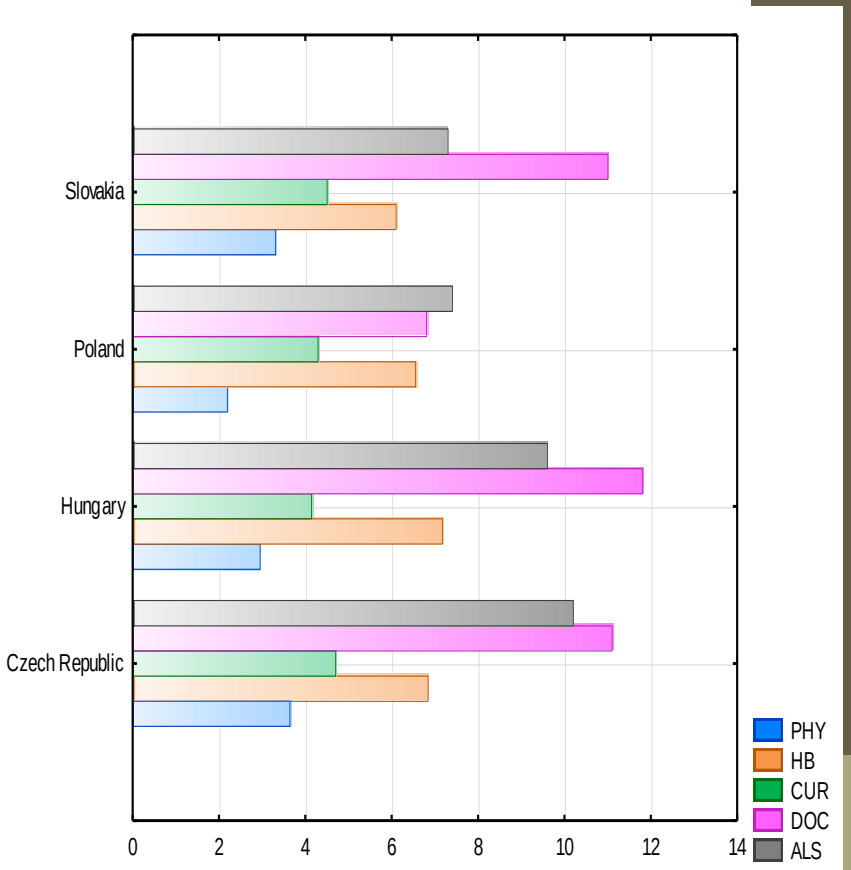
HEALTH CARE SYSTEM IN COUNTRIES OF V4 GROUP

- The analysis of per capita spendings unclothes the real potencial of healthcare financing system. It varies from 1452 USD in Poland to 1966 USD in Czech Republic (2011) with variation coefficient equal to 13,4%. Even greater variation occurs in the case of out-of-pocket spendings p. c., that varies from 289 USD in Czech Republic to 439 in Hungary (2011) with variantion coeffient equal to 20.6%



HEALTH CARE SYSTEM IN COUNTRIES OF V4 GROUP

- Relatively lower spending do not reflect on health resources. Analysis shows that both in Czech Republic, Slovakia and Hungary, the number of beds (including curative beds), and the number of physicians per 1000 inhabitants is similar or even higher than the OECD average.
- In Poland, the number of physicians and doctor's consultations is significantly lower than in other countries of the Group
- The average length of stay in hospital is the shortest in Slovakia - 7.2 days and the longest in the Czech Republic - 10.2



HEALTH CARE SYSTEM IN COUNTRIES OF V4 GROUP

	AVERAGE	MIN	MAX	STANDARD DEVIATION	VARIATION COEFFICIENT
HE	7,55	6,87	7,94	0,494	6,53763
TE	1755,48	1452,36	1965,96	235,276	13,40243
PE	72,61	65,04	84,18	8,156	11,23254
OOP	21,43	14,74	26,03	4,765	22,24040
OPP PC	371,67	289,79	439,56	76,305	20,53014
PHY	3,02	2,19	3,64	0,622	20,59337
HB	6,66	6,06	7,17	0,471	7,07194
CUR	4,41	4,14	4,70	0,243	5,52506
DOC	10,18	6,80	11,80	2,278	22,38795
ALS	8,63	7,30	10,20	1,493	17,31060
HD	18817,03	16149,30	20554,30	2019,796	10,73387

HEALTH CARE SYSTEM IN COUNTRIES OF V4 GROUP

- Data shows, that bacis indicators for V4 healthcare system are not significantly differencial – the variation coefficient is generally low (below 20%) for majority of variables
- Only for 4 variables: out-of-pocket spending, spending per capita, number of physicians and number of doctors consultations – variantion is medium
- This analysis has entitled us to adopt an assumption, that healthcare systems in V4 countries are generally similar
- **Possible differiencis in rentability indicator's level might have another origins, then healthcare system's financing and organization (on macroeconomic level)**

RESEARCH

- ROA (the return on assets) is the percentage that shows how profitable a company's assets are in generating revenue of the firm
- ROA is calculated as the ratio of net income to average total assets
- Assets are generally defined as a certain economic resource, that can generate some economic value - this category covers both current and fixed assets.

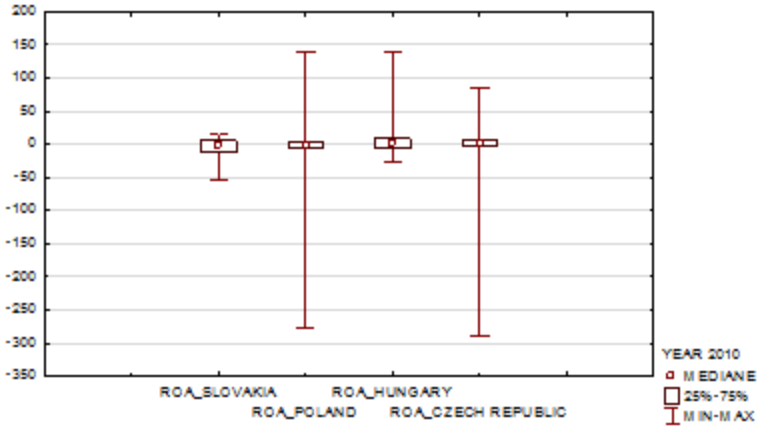
HEALTH CARE SYSTEM IN COUNTRIES OF V4 GROUP

	ROA_Slovakia	ROA_Poland	ROA_Hungary	ROA_Czech Republic
NUMBER OF OBSERVATIONS	25	605	24	153
AVERAGE	-10,9786	-2,4765	-2,2863	5,0785
MIN	-144,340	-155,487	-256,090	-90,835
MAX	14,2005	145,6537	62,8510	54,6467
25% QUARTILE	-14,5481	-7,4608	-2,5904	-0,4304
75% QUARTILE	3,32504	2,33250	14,15769	8,86045
STANDARD DEVIATION	30,97221	15,41447	56,94965	15,28060
VARIATION COEFFICIENT	-282,11	-622,42	-2490,90	300,89
SKEWNESS	-3,56848	-0,55945	-4,07766	-0,66124
KURTOSIS	15,11269	33,72188	18,97878	11,21920

RESEARCH

- The analysis of prested data has shown, that in each country ROA is extremely diversified in every year, but it is difficult, on this stage of research, to find a common pattern of observed changes
- Averge ROA was positive (above zero) in Czech Republic and negative (below zero) in Slovakia in every analised year. In Poland ROA was positive only in 2012, and in Hungary only in 2010
- Detailed analysis of ROA distribution has testified, that, regardless very seriouse spread of ROA, significant part of observation is centred and the spread between 1st and 3th quartiles is relatively low

RESEARCH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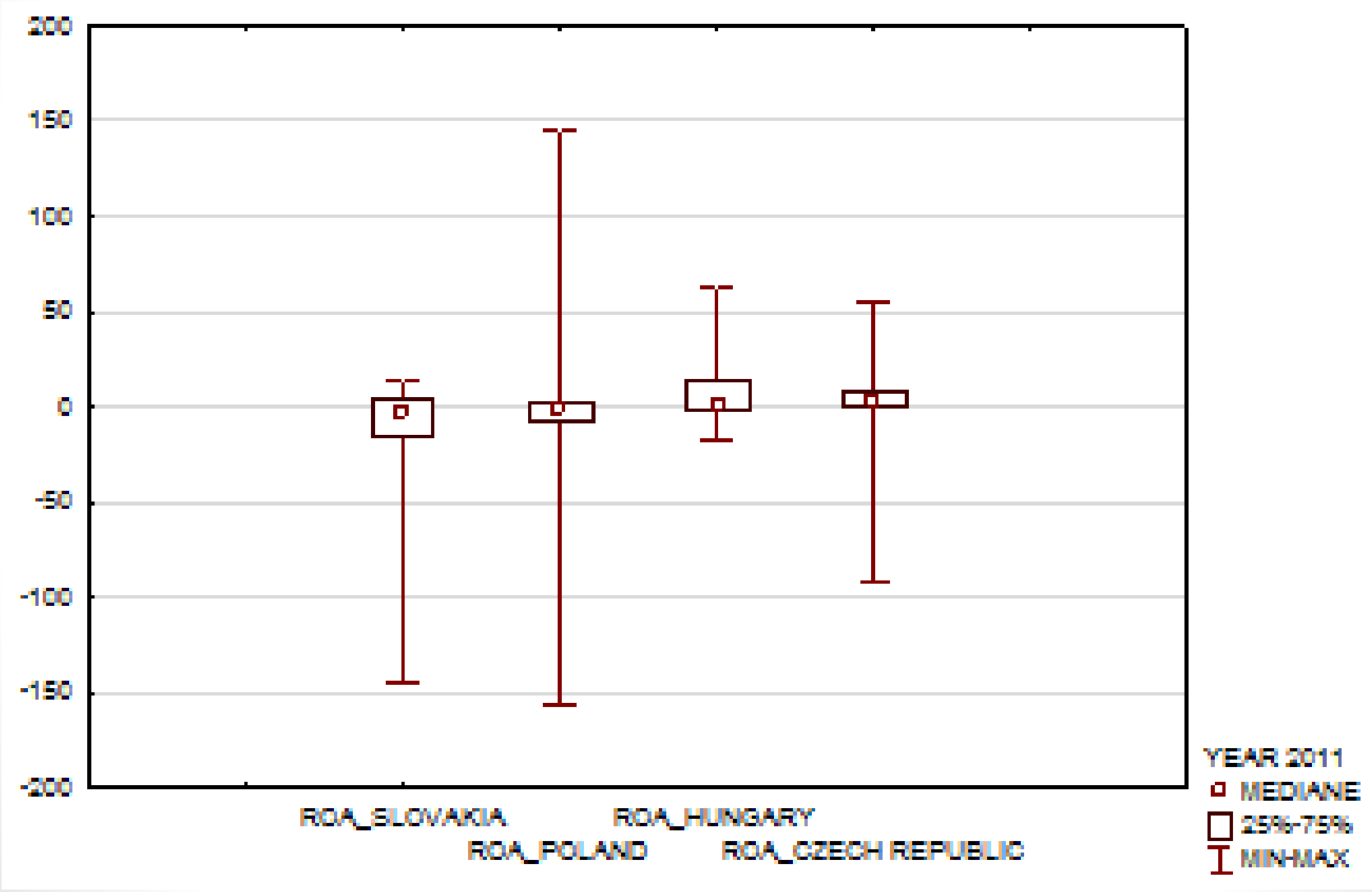
ROA_SLOVAKIA
ROA_POLAND
ROA_HUNGARY
ROA_CZECH REPUBLIC
YEAR 2010
MEDIANE
25%-75%
MIN-MAX

RESEARCH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ROA_SLOVAKIA
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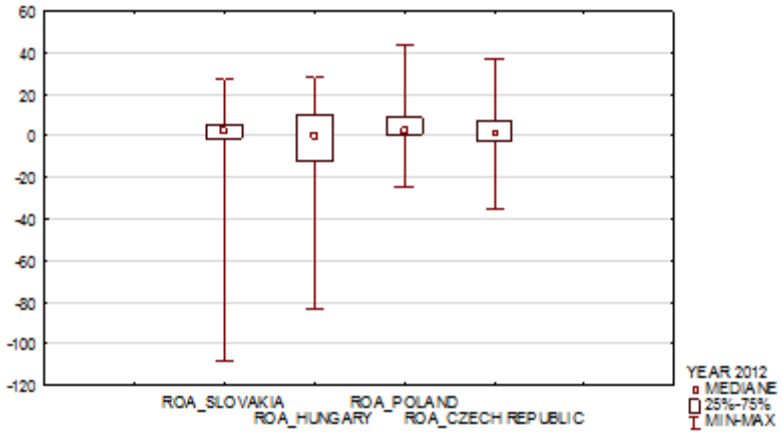
ROA_CZECH REPUBLIC
YEAR 2011
MEDIANE
25%-75%
MIN-MAX

RESEARCH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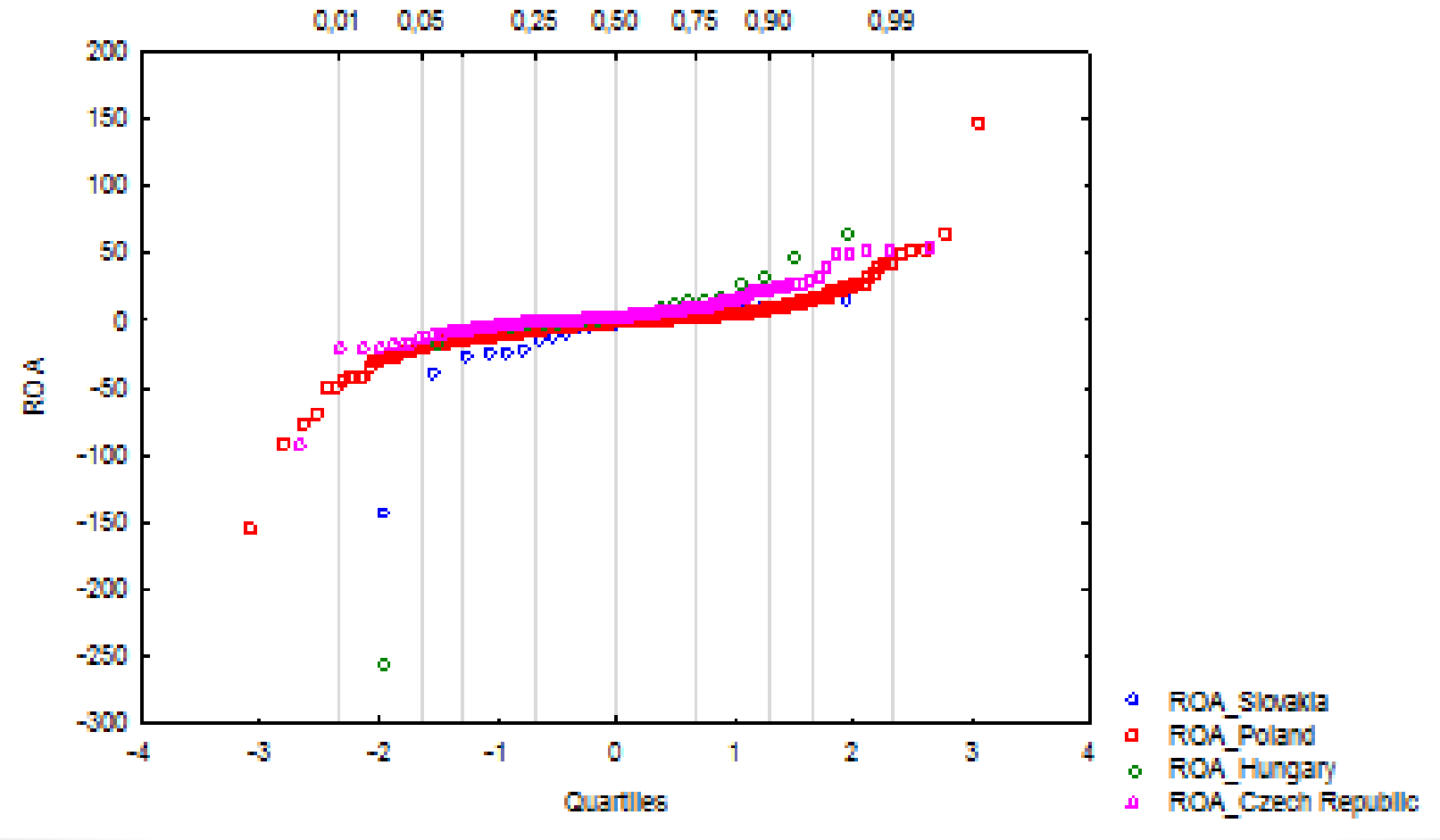
ROA_SLOVAKIA
ROA_HUNGARY
ROA_POLAND
ROA_CZECH REPUBLIC
YEAR 2012
MEDIANE
25%-75%
MIN-MAX

RESEARCH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ROA
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-3
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4
Quartiles
ROA_Slovakia
ROA_Poland
ROA_Hungary
ROA_Czech Republic

RESEARCH

	TE	PE	OOP	OPP PC	PHY	HOS	CUR	DOC	ALS	HD	ROA
HE	0,5770	-0,1302	0,1931	0,6385	0,6357	0,9848	-0,1239	0,9673	0,8303	0,9514	0,1589
TE		0,7347	-0,6900	-0,2602	0,9973	0,4263	0,7389	0,7653	0,9342	0,8004	0,8980
PE			-0,9980	-0,8462	0,6826	-0,3005	1,0000	0,1256	0,4444	0,1814	**0,9582**
OOP				0,8784	-0,6347	0,3607	-0,9975	-0,0622	-0,3864	-0,1183	**-0,9381**
OPP PC					-0,1882	0,7625	-0,8428	0,4224	0,1013	0,3706	-0,6584
PHY						0,4919	0,6872	0,8107	0,9580	0,8425	0,8631
HOS							-0,2945	0,9085	0,7209	0,8835	-0,0151
CUR								0,1319	0,4501	0,1875	**0,9600**
DOC									0,9446	0,9984	0,4041
ALS										0,9616	0,6821
HD											0,4551
ROA											

RESEARCH

- Analysis of correlation coefficients indicates, that for the V4‘ countries, the strongest positive correlation occurs between ROA and the number of curative beds (0,9600) and the level of public expenditure (as % of GDP) (0,9582)
- A significant negative correlation has been shown between the ROA and the level of out-of-pocket expenditure (-0,9381)
- The other relationships we consider statistically insignificant

RESEARCH

V4 Group	**2010**	**2011**	**2012**
average ROA	-0,5859	-1,3019	2,2811
average ROA weighted with total assets	**-1,2289**	**-1,8481**	**2,1146**
Czech Republic			
average ROA	1,9992	5,0785	2,123
average ROA weighted with total assets	**1,5668**	**2,1597**	**2,2003**
Hungary			
average ROA	11,97	-2,4765	-3,9741
average ROA weighted with total assets	**-4,1828**	**0,2568**	**-8,0034**
Poland			
average ROA	-1,5401	-2,4765	5,3979
average ROA weighted with total assets	**-2,0293**	**-3,1509**	**3,7264**
Slovakia			
average ROA	-5,3061	-10,9786	-4,145
average ROA weighted with total assets	**-0,132**	**-1,3614**	**0,3846**

DISCUSSION

- Singh and Song (2013) in their study presents hypothesis that traditionally hospitals rely on nonpatient care activities - that activity is for complementation of too small revenues from patient care -such strategy can help in strengthening financial health of hospital
- That finding is in opposite to situation in Visegrad Group‘s (V4) countries
- We have shown that ROA is strongly correlated with curative beds, so financial health of hospitals do not rely on nonpatient care in V4 countries

DISCUSSION

- We agree with Banduhn and Schluhtermann (2013) that systematic hospital risk management for sure reduce costs and make the negative influence on hospital financial health less destroying
- Out-of-pocket payments (% total expenditure) are strongly correlated with ROA in negative way in V4 countries.
- It is corresponding with Banduhn and Schluhtermann (2013) who demonstrate the financial health effects of implementing a hospital risk management.