LAURA BRAD
Bucharest University of Economic Studies, Romania

FLORIN DOBRE
Bucharest University of Economic Studies, Romania

RADU CIOBANU
Bucharest University of Economic Studie, Romania

A REGIONAL APPROACH OF FINANCIAL PERFORMANCE-EVIDENCE FROM ROMANIA

Abstract:

Regional financial performance could influence the attitude of shareholders and of the investors. It is important as it provides information about the entities that act in the area and about the factors, qualitative: like auditor type or quantitative such as individual financial elements that have an impact upon financial performance. Using different approaches for financial measures, a panel research was conducted upon the entities listed on Bucharest Stock of Exchange that have to apply as compulsory the International Financial Reporting Standards accounting regime. The results provide mix evidence: in some geographical regions (North East and South West) there is indeed a higher financial performance upon return on assets and upon cash flow indicator (North East variable), while in other regions (Central region and Bucharest Ilfov region) a lower financial performance is obtained (for cash flow indicator and return on assets).

Keywords:

financial performance, Romania, International Financial Reporting Standards, panel, fixed effect, audit, regional analysis, return on equity, return on assets, cash flow from operation

JEL Classification: M21, M41, M42

Introduction

The financial performance is a subject that has been frequently discussed as it is a matter of interest for all stakeholders. It is the measure upon which they rely and take proper decisions due to the fact that it presents information regarding if a company is successful or not. It can be analyzed together with non- financial performance, but there are plenty of studies which focus either on financial performance, either on non-financial one (Knoben and Oerlemans, 2006).

Considering these, the purpose of the present research is to provide information about the factors that can impact the financial performance of Romanian companies that are listed on the Bucharest Stock of Exchange (BSE), measured at regional level. The interest in this subject is due to the fact that starting with 2012 the Romanian entities that are listed on the BSE have to apply International Financial Reporting Standards (IFRS) for their individual financial statements. It is true that the switch from Romanian accounting measures to IFRS does not directly influence the financial performance, but rather an impact in the way of reporting is observed. Consequently, lower values for financial performance are expected to be obtained.

Literature review

There is a few literature regarding analyses conducted at regional level. This is because when analyzing financial performance it is easier to provide information considering cross country approach. At regional level, the differences can be also revealed, but the influence of individual factors can be mitigated. On the other hand, there is a fundamental need to reveal how the financial performance is in Romania in order to detect what areas are more profitable for investment or for other shareholders.

In general, the literature is focusing on macroeconomic analyses such as the one conducted by Hassan et all (2011). They demonstrated that financial development is differently correlated with economic growth when regions for developed countries and developing economies are considered. As a fact, in short term analysis, there is evidence that a two way causality relationship between the variables encountered exist in almost every region, but there is a change for the poorest regions where only one-way causality relationship from growth to financial development is presented. Financial development is also a factor of influence upon international trade (Algieri et Mannarino, 2013) that has an impact on long term considering the disparities between Italian regions.

In Romania, Chilian (2012) aimed to present both the employment and gross value added disparities between economic sectors, regions and Romanian counties using a shift share decomposing method. Even though all regions have encountered ongoing changes that mitigate the disparities related to country level, Bucharest – Ilfov region seems to be the one that is most close to a developed market economy. The results are in accordance with the results obtained by Brad et all (2013) which states that the entities that act in this region do indeed obtained higher financial performance than the one obtained in other Romanian NUTS regions. The explanation can be due to the fact that according to Miron et all (2009), Bucharest- Ilfov region has highest concentration of intellectual capital (students and people that work in R&D departments), good infrastructure, well trained workface and an important migration of youth people. Smaller values are obtained in North West and South region, part of them being proved also by Brad et all (2013). Bucharest also seems to have the highest rate of investment as other studies pointed out (Aparaschivei, 2012).

Methodology of research

The methodology is going to focus not on forecasting, but rather on building a model of inference. The data that we are going to use is financial information of the companies that are listed on the BSE that have to report their individual financial statements using the IFRS approach.

As reporting using IFRS is mandatory from 2012, we took into consideration only the entities that were listed at the end of the year, excluding the entities that have been listed afterwards. Initially, 68 companies have to provide their individual accounting information using IFRS, but after that a new regulation occurred. While two companies were delisted due to the fact that major shareholder had more than 95% of the company's shares and could request for this operation, 4 companies were listed on 2013 and applied the new regulation. There is another new company that is providing its individual financial statements using the international accounting measures, but for this company not shares, but rather bonds represent the object of trading.

Consequently, even though there are 71 companies that have to adapt to new regulation, our sample is smaller than that. We excluded the companies that have been listed from 2013 and the company upon which bonds are traded. As we conducted the analysis upon the period 2010-2012, we also excluded the companies that had a negative value of shareholders' own capital during the analyzed period. These companies were ARM, CGC, COFI, COS, EPT, MJM, OLT, RRC, UCM. Their own capital had negative values either using IFRS approach, either using the Romanian accounting technique. On the Romanian market, there were also two companies that were in insolvency during the analyzed period (SRT, UZT). Due to this aspect, their treatment was similar with that of the companies that had negative values for their own shareholder capital or, in other words, they were not included into our analysis. The final sample consists of 54 companies for which individual financial data was collected manually from their individual site and from the BSE site. This data refers to the value of net profit, current and total assets, own capital, long term and short term debt, sales and cash flow from operations.

The financial performance was measured using three indicators: return on equity (ROE) – measured as the ratio between end year net profit and shareholder's equity taken from the beginning of the year, return on assets (ROA) measured as the ratio between value of end year net profit and the value of end year total assets and the ratio between cash flow from operations and total assets, both measured at the end of the year.

We also included some individual financial indicators such as liquidity ratio, debt ratio or the levier indicator, the size of the company – measured as decimal logarithm of total assets and sales divided by total assets.

The analysis also took into consideration what type the financial auditor is. As a fact, if the financial auditor is one of the BIG 4 entities, than value 1 was conferred to a dummy variable, otherwise the dummy variable took 0. The literature points out that a positive correlation exists between the adoption of the IFRS and the external financial auditor (Zéghal et all, 2011). Moreover, a variable that refers to the new regulation was also included. This was mandatory as data for 2010 and 2011 was collected using Romanian accounting value, while data for 2012 was collected using the IFRS approach.

We also used the region where each company acts in order to reveal if any significant difference among them exists. In Romania, there are 8 regions that are

included in NUTS second level and that are part of 4 macroeconomic regions or NUTS first level. The macroeconomic regions are not use in practice; they are in general use for statistic's purposes. Consequently, 8 dummy variables were created, having value 1 if the company acts in a particular region.

The model upon which we have started to conduct our analysis is a panel data model, having the form from equation (1):

$$Financial\ indicator_{it} = \alpha_{1it} + \alpha_{2it} * indebtedness_{ratio_{it}} + \alpha_{3it} * liquidity_{ratio_{it}} + \alpha_{4it} * sales_{totalassets_{it}} + \alpha_{5it} * size_{it} + \alpha_{6it} * auditor_{it} + \alpha_{7it} * IFRS_{variable_{it}} + \alpha_{8it} * dummy_{region_{var_{it}}} + \varepsilon_{it} \quad (1)$$

where

Financial indicator is the measure of financial performance – in this case ROE, ROA or CF from operation divided by total assets (CF_TA), *i* measures the cross sectional dimension, *t* is the correspondent for time period dimension, α_{2it} … α_{8it} are individual coefficients, *indebtedness ratio or debt ratio, liquidity ratio, sales to total assets ratio (Sales_TA), size* of the company are the financial indicators included into the analysis, *auditor, IFRS variable and dummy region variable* are dummy variables used into the analysis, with only two value: 0 and 1 (value one is taken by auditor variable if financial auditor is one of the BIG 4 companies, is taken by IFRS variable if the accounting measure under which financial data are presented is IFRS and is taken by region if an entity acts in a particular NUTS region) and ε_{it} is the error term. In case the panel model is with fixed effects, the constant varies either across companies, either across time, either both. In case a random effect is used the constant is similar for all observations, while the error term is formed from two parts: the initial error term and additional error term specific to each company.

The problem that we have in our analysis is that due to the fact that we aim to estimate regional influence, we have time invariant variables. It is known that with fixed effect panel data technique, the effects of variables which values do not vary over time cannot be estimated (cross sectional fixed effect). These models use only the within variance for the estimations and exclude the between variance of the estimators, not allowing for estimation of time invariant elements (Baltagi 2001; Wooldridge 2002). In other worlds, an error will occurred when using cross sectional fixed effects as automatic dummy variables for each group observation are created. The error is generated by the fact that multicollinearity variables are detected. In fact, we can control for this variables as the assumptions can be similar with random assignment. Due to this approach, the effects are expected to be less or more the same across groups.

On the other hand, in a random effect model, the estimation of the effects of these time invariant variables can be controlled, but the estimated values can be biased as we do not control for omitted variables that were not included into the analysis. Also, in a random effect model the unobserved variables are assumed to be statistically independent from all other variables. In practice, this assumption is often unreliable; however, it allows us to estimate time invariant variables.

Firstly, the impact of IFRS was tested. Three estimation models were used: a pool one, a cross sectional fixed effect model and a cross sectional random effect model. We compared the results with those provided by random period's effects and we tested the relevance of the estimation output by using the Hausman test

(Hausman, 1978). Also we test to see if the fixed effects are statistically different or, in other words, if pooled model is better that the random element.

The hypothesis that we develop is:

H1: There is a significant impact of using the IFRS for individual financial statements upon financial performance

We also tried to provide evidence about the influence of regional variables considering different approaches: a model where we included period fixed effect, considering that the main difference among our observation is due to time effect. In the end, we adjusted our model for period heteroskedasticity and general correlation of observations within the cross section elements and we look at any significant changes, both in terms of sign and of relevance.

The hypotheses of research are in this case:

.H2: There is both positive and negative influence of regional variables upon financial performance.

H3: The adjustments will improve the models developed.

Discussions and results

The idea of research is to present what are the factors that influence the financial performance considering regional approach. The research is conducted on 54 companies that are listed on the BSE and that have to apply as compulsory the IFRS accounting measures from 2012 for their individual financial statements.

As it was presented, Romania has 8 NUTS second regions, which are structured in 4 NUTS first regions. Table 1. reports the regional distribution of the companies included in the analysis.

Table 1. Number of companies according to their regional appurtenance.

First-level NUTS	Second Level NUTS	Number of Companies[1]
One	North West Region	8
	Centre Region	7
Two	North East Region	6
	South East Region	8
Three	South Region	7
	Bucharest Ilfov Region	12
Four	South West Region	5
	West Region	1

Source: own computation

In order to conduct the analysis, firstly the correlation matrix has been calculated. The idea is to detect if any significant correlations exists among the variables included

[1] The companies for each region are presented according to their area of development by using symbol from BSE
Nord West Region includes : CBC, CEON, COTR, STZ, TRP, TUFE, CMF and ENP
Center Region: RPH, TGN, CMP, COMI, DAFR, RTRA, APC
North East Region: ATB, ARS, BRM, BCM, ECT, MECF
South East Region: OIL, SOCP, SPCU, CMCM, ROCE, EFO, VNC, SCD
South Region: AMO, ELJ, ELGS, MEF, PTR, VESY, UAM
Bucharest-Ilfov Region: BIO, TEL, ELMA, IMP, SNP, PREH, TBM, ALU, PEI, PPL, STIB, CAOR
South West Region: ALR, ALT, ARTE, SNO, ART
West Region: RMAH

into the analysis as it can be seen in appendices. At sample level, no significant higher correlation (upon 0.5 or under -0.5) was detected. The highest correlation seems to be between the size of the company and the financial auditor that the entity has. The correlation is 0.4660 and it can be interpreted as larger the company is, higher the quality of financial auditor is. In other words, when companies are large enough, they prefer to be audited by BIG 4 companies, on one hand do to the complexity of their activity, and on the other hand, due to the fact that BIG 4 companies are consider to providing higher accounting quality information **(Michaely and Shaw, 1995)**. Considering the value of the correlation coefficient, the variables could be used both together and separate in the analysis. It is possible that due to the correlation that exits, one of the variables to remain statistically significant, while the other one can have a coefficient which could be statistically not different from zero.

After observing what the correlation between dependent and independent variables is, we tested if there is any significance of the adoption of IFRS regulation. In order to do this, we conducted the analysis using both a pooled and a cross sectional fixed effect model. It has to be mentioned that the region was not taken into consideration at this step as we consider that the impact of IFRS should be uniform across regions (should be observed no matter what the region where the company acts is). The results are presented in table 2.

Table 2. The impact of IFRS adoption upon the financial performance

Element	Dependent variable ROE			Dependent Variable ROA			Dependent Variable CF_TA		
	Pooled model	Cross section fixed model	Random cross sectional model	Pooled model	Cross section fixed model	Random cross sectional model	Pooled model	Cross section fixed model	Random cross sectional model
Constant	-3.5419***	1.5933+α_i	-3.5724*	-0.1026	-0.7654+α_i	-0.1293	--0.1660***	-0.3091+α_i	-0.1715***
Debt	-0.0454	-0.0457	-0.0448	-0.0204*	-0.0149**	-0.0181*	-0.007	-0.0001	-0.0069
Liquidity	0.0021	0.0021	0.002	9.48*E-05	0.0002	0.0001	0.0019***	0.0040	0.0021**
Sales_TA	0.0614	0.0614	0.0602	0.0260*	0.0932	0.0174	0.0065	0.0046	0.0062
Size	0.4519*	0.4519*	0.4561*	0.0143	0.0377**	0.0261*	0.0253**	0.0419	0.0259**
Auditor	-0.3269*	-0.3269	-0.3413*	0.0132	0.0008	0.0105	0.0024	-0.0140	0.0015
IFRS	-0.0904	-0.0904	-0.0899	-0.0044	-0.0061	-0.0048	-0.0075	-0.0092	-0.0077
R-squared	0.1765	0.5324	0.1715	0.1901	0.7341	0.1477	0.0714	0.4363	0.0630
F and F stat	5.5384*	1.9685*	5.3481*	6.0654*	4.7729*	4.4790*	1.9892***	1.3383***	1.7395
DW	1.54	2.19	1.58	1.14	3.40	2.31	1.45	2.39	1.61
Hausman test			24.76*			2.62			0.00
Redundant fixed effect test		1.4647***			3.9371*			1.24	

Source: own computation using Eviews,
*Note: *,**,*** represents statistically significance at 1%, 5% and 10%*

From table 2 it can be seen that there is no statistically significant impact of the IFRS adoption. If any coefficient associated to it would be statistically significant from zero than there would be a negative impact of the adoption of IFRS. We interpret this in terms of accounting quality improving as higher fluctuation on net profit and on the other profitability elements is expected to be obtained.

The coefficient of liquidity variable is not statistically significant of zero. In fact, the probability associated with accepting the null hypothesis is the highest for its coefficient (probability is around 0.8). The exception is the pooled model where cash flow from operation divided by total assets is the dependent variable. The literature provides evidence that after the IFRS approach is implemented, less evidence of liquidity influence is detected, especially when changes in enforcement do influence this effect (Landsman et all 2012). Due to this, we estimated if there is any impact of IFRS by excluding it from the analysis. No relevance in almost any model is also

detected for sales divided by total assets. If no significant improvement upon the model indicators was detected, the variable was also exluded from the analysis. The size, debt and auditor variables do seem to have an influence upon the financial performance: positive relationship between size and financial performance and negative correlation between debt and financial performance and between auditor type and financial performance. While for the size and debt the relationship is found in the literature, the results are interesting when auditor variables is taken into consideration. We consider that in fact the negative correlation between auditor type and financial performance is a sign of higher quality of audit services as companies tend less to manipulate their financial information. The adjusted results are presented in table 3.

Table 3. The impact of IFRS adoption upon the financial performance- adjusted results

Element	Dependent variable ROE			Dependent Variable ROA			Dependent Variable CF_TA		
	Pooled model	Cross section fixed model	Random cross sectional model	Pooled model	Cross section fixed model	Random cross sectional model	Pooled model	Cross section fixed model	Random cross sectional model
Constant	-3.4942*	1.3777+α_i	-3.4672	-0.1005	-0.7502+α_i	-0.1264	-0.1167	-0.0820+α_i	-0.1187
Debt	-0.0483	-0.0723	-0.0297	-0.0205*	-0.0150**	-0.0182*	-0.0080***	-0.0023	-0.0076
Sales_TA	0.0610			0.0260*	0.0374**	0.0260*			
Size	0.4473*	-0.1291	0.4492*	0.0141	0.0915	0.0171	0.0209***	0.0167	0.0211
Auditor	-0.3275*	-1.8331*	-0.3631*	0.0132	0.0088	0.0104		-0.0155	-0.0007
IFRS	-0.0891	0.0201	-0.0961	-0.0043	-0.0059	-0.0047	-0.0071	-0.0074	-0.0072
R-squared	0.1762	0.5320	0.1646	0.1900	0.7340	0.1479	0.0500	0.4224	0.0425
F and F stat	6.6750*	2.0743*	7.7378*	7.3224*	4.9006*	5.4193*	2.7773**	1.3343	1.7462
DW	1.54	2.19	1.57	1.14	3.39	2.31	1.41	2.3	
Hausman test			0.00			0.00			0.00
Redundant fixed effect test		1.5182**			3.9741*			1.2648	

Source: own computation using Eviews,
*Note: *,**,*** represents statistically significance at 1%, 5% and 10%*

The results presented in table 3 are similar with the results presented in table 2. It can be concluded that the impact of IFRS upon financial performance is not statistically significant no matter what the company that applies them is. As a fact, we have to reject the first hypothesis of research. Moreover, it seems that the models where the dependent variable is cash flow from operation divided by total assets report lower results, while notable feat is detected when return on equity is used as dependent variable.

Next step in our analysis was to implement a panel model considering period fixed effect. As it was acknowledged there is not possible to realize cross sectional fixed effects. In order to check for the robustness of the results, each regression was also realized by excluding several variables. For example, for North West region, no significance of region coefficient was detected even if only debt and auditor or debt and size elements were also regressed as independent variables. As a fact, the results are presented considering the general form of each equation is revealed in table 4.

Table 4. The relevance of region upon ROE when differences among period time are considered

Dependent variable ROE								
Method of estimation fixed period effects, none effect on cross sectional elements								
Element								
Constant	-3.5117*+α_i	-3.5810*+α_i	-3.6923*+α_i	-3.5529*+α_i	-3.7941*+α_i	-3.4551*+α_i	-3.6129*+α_i	-3.5175*+α_i
Debt	-0.0470	-0.0455	-0.0443	-0.0535	-0.0424	-0.0453	-0.0518	-0.0523
Sales_TA	0.0608	0.0617	0.0664	0.0591	0.0570	0.0548	0.0682	0.0635
Size	0.4466*	0.4551*	0.4649*	0.4536*	0.4773*	0.4376*	0.4593*	0.4462*
Auditor	-0.3558*	-0.3234*	-0.3208*	-0.3267*	-0.3313*	-0.3305*	-0.3214*	-0.3200*
NW_R	-0.0155							
C_R		-0.0859						
NE_R			0.1230					
SE_R				-0.1210				
S_R					0.1665			
BI_R						0.0627		
SW_R							-0.1578	
W_R								0.0804
R squared	0.1881	0.1902	0.1917	0.1930	0.1959	0.1897	0.1937	1.1883
F and F stat	5.0978*	5.17*	5.2199*	5.2625*	5.3601*	5.1515*	5.2854*	5.1048*
DW	1.51	1.52	1.52	1.52	1.53	1.51	1.53	1.51
Redundant fixed effect test	1.5837 (0.2085)	1.5975 (0.2057)	1.6083 (0.2036)	1.5794 (0.2094)	1.6205 (0.2011)	1.5859 (0.2081)	1.5891 (0.2074)	1.5748 (0.2103)

Source: own computation using Eviews,
*Note: *,**,*** represents statistically significance at 1%, 5% and 10%*

From table 4. it can be observed that there is no significant difference on ROE and no impact upon it by regional variables considering the period within 2010 -2012 period. On the other hand, positive influence of size can be detected upon financial performance and negative correlation between the type of financial auditor and financial performance. We interpret that if a company has a financial auditor from BIG 4, the probability of reporting false information is mitigated. Due to this aspect, higher volatility in financial indicators is expected to be obtained.

Considering the return on assets as dependent variable, the econometric results are presented in table 5.

Table 5.The relevance of region upon ROA when differences among period time are considered

Dependent variable ROA								
Method of estimation fixed period effects, none effect on cross sectional elements								
Element								
Constant	-0.1038+α_i	-0.0944+α_i	-0.1442**+α_i	-0.1028+α_i	-0.1101+α_i	-0.137***+α_i	-0.1097+α_i	-0.0939+α_i
Debt	-0.0208*	-0.0210*	-0.0194*	-0.0206*	-0.0204*	-0.0221*	-0.0208*	-0.0232*
Sales_TA	0.0263*	0.0262	0.0271*	0.0260*	0.0259*	0.0297*	0.0266*	0.0268*
Size	0.0142	0.0104	0.0185**	0.0142	0.0150***	0.0118**	0.0151***	0.0130
Auditor	0.0135	0.0132	0.0144	0.0134	0.0132	0.0160	0.0137	0.0170
NW_R	0.0018							
C_R		0.0132						
NE_R			0.0315**					
SE_R				-0.0018				
S_R					0.0048			
BI_R						-0.0292*		
SW_R							-0.0136	
W_R								0.0588*
R squared	0.2020	0.2030	0.2209	0.1981	0.1968	0.2324	0.2020	0.2123
F and F stat	5.5698*	5.6043*	6.2394*	5.4374*	5.4549*	6.6624*	5.5698*	5.9295*
DW	1.13	1.13	1.15	1.12	1.12	1.17	1.13	1.15
Redundant fixed effect test	0.8699 (0.4210)	0.8666 (0,4224)	0.9293 (0.3970)	0.8707 (0.4207)	0.8757 (0.4186)	0.9174 (0.4017)	0.8764 (0,4183)	0.8702 (0.4209)

Source: own computation using Eviews,
*Note: *,**,*** represents statistically significance at 1%, 5% and 10%*

From table 5 it can be revealed that there could be an influence of regional factors upon the financial performance measured using ROA. It seems that entities that are in North East Region (NE_R) and the company from West region (W_R) obtained higher performance than the companies that act in other NUTS regions, while companies from Bucharest Ilfov Region (BI_R) had a lower financial performance that the other entities that are listed on the Bucharest Stock of Exchange. The effect is presented considering the 2010-2012 period of time. Regarding the fixed effect, we cannot provide evidence if they are entirely different from one period to another due to the fact that the probability associated with redundant fixed effect is situated within 10% and 80%. No relevant conclusion can be extracted. Moreover, if we analyze the individual effect, we are going to observe that its value is decreasing. For 2010, a positive value is detected (the value is around 0.008 for each region that has its coefficient statistically significant from zero), for 2011, the lowest value is identified (the value is around -0.005), while for 2012, the value remains negative, but is increasing (the value is around -0.002). Consequently, there seems to be a specific difference among 2010-2012 considering the financial performance (ROA) of the listed companies. In our opinion, these results could be interpret as follows: in 2010 companies reported higher financial performance, 2011 was the year of pre adoption of IFRS so significant changes occurred in financial statements framework. 2012 was the year of adoption the IFRS for individual financial statements so a significant improvement is observed.

The last variable that we used to measure financial performance is cash flow from operation divided by total assets. Considering that the ratio of sales divided by total assets had no significant impact upon the measure of financial performance, it was not included into the estimation output. The specific results are presented in table 6.

Table 6.The relevance of region upon CF_TA when differences among period time are considered

Dependent variable CF_TA								
Method of estimation fixed period effects, none effect on cross sectional elements								
Element								
Constant	-0.1663+α_i	-0.1375+α_i	-0.1926**+α_i	-0.1209+α_i	-0.1587***+α_i	-0.1191+α_i	-0.1264+α_i	-0.1153+α_i
Debt	-0.0066	-0.0070	-0.0055	-0.0085***	-0.0074	-0.0081	-0.0082***	-0.0090***
Size	0.0196***	0.0235**	0.0287*	0.0213***	0.0253**	0.0209***	0.0222**	0.0204***
Auditor	-0.00004	0.00006	0.0013	-3.50E-05	-0.00006	2.51E-05	0.0001	0.0013
NW_R	-0.0203							
C_R		-0.0300***						
NE_R			0.0569*					
SE_R				-0.0083				
S_R					0.0224			
BI_R						-9.46E-05		
SW_R							-0.0149	
W_R								0.0235
R squared	0.0594	0.0690	0.1054	0.0517	0.0618	0.0500	0.0536	0.0517
F and F stat	1.6330	1.9151*	3.0466*	1.4093	1.7004	1.3623	1.4644	1.4107
DW	1.43	1.44	1.50	1.42	1.43	1.41	1.42	1.42
Redundant fixed effect test	0.1946 (0.8233)	0.1987 (0.82)	0.2360 (0.7901)	0.1738 (0.8406)	0.1905 (0.8267)	0.1781 (0,8370)	0.1786 (0.8366)	0.1708 (0.8431)

Source: own computation using Eviews,
*Note: *,**,*** represents statistically significance at 1%, 5% and 10%*

Table 6 presents that companies which are in North East Region do obtain a higher financial performance when cash flow from operation divided by total assets is used as the dependent variable, while companies from center region have a lower financial performance. Positive influence is found to be relevant between dependent variable and size of the company. Other correlations have not been identified. Table 6 also presents that there are several models that are not valid (all coefficients are not statistically significant from zero). Considering the fixed effects, they have a similar trend with that presented in explanations related to table 5. For 2010, a positive value iss detected, than for 2011 and 2012 a negative value is identified.

By analyzing the results from table 4, table 5 and table 6 we can conclude that the second hypothesis is validated as mixt results are obtained both at regional level and on financial performance.

Additional analysis

Considering the results obtained and presented in table 4, in table 5 and in table 6, we can observed that the model do have autocorrelation included. Due to this aspect, we conducted additional analysis, where we correct the models. Corrections about period heteroskedasticity and general correlation of observations within the cross section elements were made. The results are presented in table 7. Any modification in terms of sign and statistically significance is pointed out.

Table 7. The results of controlling for period heteroskedasticity and general correlation of observations using all three measures of financial performance

	Dependent variable ROE						Dependent variable ROA						Dependent variable CF_AT				
Region	Region variable change	Redundant fixed effect test	Other modification on individual variables				Region variable change	Redundant fixed effect test	Other modification on individual variables				Region variable change	Redundant fixed effect test	Other modification on individual variables		
			Debt	Sales_TA	Size	Auditor			Debt	Sales_TA	Size	Auditor			Debt	Size	Auditor
NW_R	No	1.2713 (0.2834)	-0.073*	0.0586**	No	Positive, not significant	Negative influence -0.0004	2.6913*** (0.0710)	No	No	No	No	No	0.1874 (0.8292)	No	No	No
C_R	Positive influence 0.0042	1.2531 (0.2885)	-0.074*	0.0601**	No	not significant	No	2.6295*** (0.0754)	No	No	No	No	Same sign -0.0367**	0.1952 (0.8228)	No	No	Positive, not significant
NE_R	No	1.2771 (0.2818)	-0.073*	0.0614**	No	not significant	No	2.8069*** (0.0635)	No	No	No	No	No	0.2099 (0.8108)	No	No	Negative, not significant
SE_R	No	1.2626 (0.2858)	-0.074*	0.057**	No	not significant	No	2.6815*** (0.0717)	No	No	No	No	No	0.1718 (0.8422)	Not significant	No	No
S_R	No	1.2604 (0.2864)	-0.074*	0.06**	No	not significant	No	2.7463*** (0.0673)	No	No	No	No	No	0.1850 (0.8312)	No	No	No
BI_R	Negative influence -0.029	1.2624 (0.2459)	-0.076*	0.064**	No	not significant	Signif. Change -0.0301**	2.7675*** (0.0659)	No	No	No	No	Positive, not significant	0.1779 (0.8372)	No	not significant	Negative, not significant
SW_R	No	1.2440 (0.2911)	-0.077*	0.063**	No	not significant	No	2.7092*** (0.0698)	No	No	No	No	No	0.1772 (0.8378)	No	0.0217***	Negative, not significant
W_R	No	1.2556 (0.2878)	-0.080*	0.061**	No	not significant	Positive, not significant 0.0463	2.6578*** (0.0733)	No	No	No	No	No	0.1740 (0.8404)	Not significant	No	Negative, not significant

Source: own computation using Eviews,
*Note: *,**,*** represents statistically significance at 1%, 5% and 10%*

From table 7, it can be observed that even though we have controlled for period heteroskedasticity and general correlation of observations among cross section, no better results were obtained. In fact, in can be illustrated that after the adjustment has been done, fewer regions variable impact the financial performance. Only the relationship between Bucharest –Ilfov region and ROA remained statistically significant. It seems that companies situated in this region obtained a lower financial performance within 2010 and 2012.

Conclusions

The present research tries to provide evidence about the impact of regional influence upon the financial performance measured though ROE, ROA and the ratio between cash flow from operations and total assets. The idea of research came from the fact that fewer studies are conducted on regional level and it is also correlated with the fact that Romanian entities have to report their individual financial statements using IFRS from 2012. Due to this, financial information was extracted from their individual financial statements and several hypotheses have been tested. Considering the IFRS approach, it seems that there is no any evidence that they have an impact upon financial performance measured within 2010 and 2012. The results were obtained by estimating three models: a pool model, a cross sectional fixed effect model and a cross sectional random effect model, by using a sample of 54 companies. Consequently, the first hypothesis of research was rejected as no significant impact of IFRS upon financial performance was detected.

The rest of the analysis tries to reveal the influence of regional position upon financial performance. The results are mixt. For the first financial performance indicator, ROE, no significant influence of the regional variable was identified. We interpret this as a sign that financial performance measured though ROE does not depend on where the company acts, but rather on what its financial objectives are.

Considering ROA, a positive correlation was detected with respect to North East and South West regions and a negative influence for Bucharest Ilfov region. The results are opposite to what literature presents: the Bucharest Ilfov region has the highest performance (Aparaschivei, 2012: Brad et all, 2013; Miron, 2009).

The last measure of financial performance was the ratio of cash flow from operations divided by total assets. Higher financial performance is found to be for North East variable and lower financial performance for Central region. The results sustain the hypothesis of mix effect, but their adjustments with period heteroskedasticity and general correlation of observations do not bring additional relevance for other regional dummy variables. Thus, hypothesis three of research is rejected.

The problems that we encountered in the analysis were firstly related with the procedure of manually collected data. Then we admit that the period upon which we conducted the analysis could be to small in order to provide enough information for regional approach. Considering these, our aim is to extend the analysis on a longer period of time and to create and implement additional econometric models, such as dynamic panel models, with which grouping by companies and by regions can be realized.

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Appendices

Table 8. The correlation matrix

Element	ROA	ROE	CF_TA	Debt	Liquidity	Sales_TA	Size	Auditor	IFRS	W_R	SW_R	S_R	SE_R	NW_R	NE_R	C_R	BI_R
ROA	1																
ROE	0.2391*	1															
CF_TA	0.3802*	0.1481***	1														
Debt	-0.2450*	-0.1174	-0.1379***	1													
Liquidity	0.0272	-0.0312	0.1128	-0.2775*	1												
Sales_TA	0.1895**	0.0320	-0.0067	0.3706*	-0.10552	1											
Size	0.1387***	0.3117*	0.1705**	-0.0044	-0.2428*	-0.1168	1										
Auditor	0.0440	-0.0764	0.0519	0.1848	-0.1757**	-0.1136	0.4660*	1									
IFRS	-0.0775	-0.093	-0.0568	0.0945	0.0254	-0.0437	0.0155	0.0673	1								
W_R	0.0038	0.0099	-0.0062	0.3245*	-0.0673	0.0844	-0.008	-0.0878	5.2E-18	1							
SW_R	0.0002	-0.0175	-0.0280	-0.0357	-0.0432	0.0547	0.1529***	0.0773	7.2E-18	-0.0438	1						
S_R	0.0294	-0.0003	0.0645	-0.0880	0.0320	0.0642	-0.2948*	-0.1252	-3.0E-17	-0.0530	-0.1232	1					
SE_R	0.019	-0.0301	-0.0047	-0.1614**	-0.002	-0.1244	0.0799	0.0014	3.2E-17	-0.0672	-0.133***	-0.1609**	1				
NW_R	-0.1424***	-0.0846	-0.1449***	0.2324*	-0.1072	-0.1107	-0.1217	-0.0368	4.0E-17	-0.0672	-0.133***	-0.1609**	-0.1739**	1			
NE_R	0.1187	-0.0093	0.1990**	-0.1713**	0.2110*	-0.1012	-0.2717*	-0.1827***	2.2E-17	-0.0485	-0.1129	-0.1364***	-0.1474***	-0.1474***	1		
C_R	0.0558	-0.0155	-0.1231	0.12132	-0.1378***	0.0033	0.1619**	0.11773	-3.7E-17	-0.0530	-0.1239	-0.14893***	-0.1609**	-0.1609**	-0.1364***	1	
BI_R	-0.0546	0.1269	0.0463	-0.0383	0.0712	0.1572**	0.2447*	0.1490***	8.7E-19	-0.0734	-0.1707**	-0.2062*	-0.2229*	-0.2229*	-0.1889**	-0.2062*	1