INTERNAL AUDIT IMPLICATIONS ON BANK PROFITABILITY. THE ROMANIAN CASE.

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Abstract: The aim of this paper is to determine the implications of the internal audit on bank profitability. We have conducted a Multiple Linear Regression Model using data from 15 Romanian commercial banks. The data used in our model is for a ten years period (2003-2012) as reported by the Bureau Van Dijk database and the annual reports of the banks from our sample. The result of fixed effects (within) regression suggests that fixed model is a better choice than ordinary least squares models for estimating influence on ROAA. The results showed that independent auditors and CEO duality (as dummy variables) influence (being statistically significant and having expected sign of coefficients) bank profitability regarding the commercial banks in Romania in the analyzed period of time.

Keywords: Audit; Financial Reporting; Bank Profitability.

JEL classification: G21; M48.

1. Introduction
Internal audit represents a relatively recent activity and leads to new responsibilities providing a path in constructing new objectives in company risk management. Internal audit contributes to risk management and governance efficiency which leads to better performance that cannot be achieved without the collaboration and the support of the company's management, in our case, of the bank's management. Internal audit is the subject of numerous scientific papers, articles and studies in both nationally and internationally scientific literature.

2. Literature review
Internal audit must provide independence and objectivity and by providing that internal audit must consult and collaborate with company's risk management, control and corporate governance Al-Akra M. et al (2016). An effective internal audit and an effective internal audit committee are very important for the corporate governance and company efficiency (Alzebana A. and Sawanb N., 2015). The audit committee characteristics such as: the independence of the audit committee, the expertise, the size of the audit committee and the number of meeting has an important impact on the implementation of the internal audit recommendations. The authors showed that the independent audit member variable has a higher contribution in corporative risk management and corporate performance and to the external audit. Internal Audit evaluates and improves the effectiveness of risk management and control within an entity Zaharia D. et.al (2014). Internal audit is viewed from the perspective of the authors at the last level of internal control within a company. Internal

audit helps companies in fulfilling their objectives by adding value and transparency and by assisting the managers to a better strategy for the companies' activities (Botez D. 2012). Internal audit represents a needed factor for business efficiency regarding efficient management of the patrimony, reducing company costs, maximizing profit and achieving long-term objectives (Petraşcu D. and Tieanub A., 2014). Internal audit increases the credibility of the financial statements therefore it reduces the divergence in investors' assessments of firm value. The analysis conducted on Chinese companies (Chen C., et.al, 2014) showed that investors relay more on audited financial statements and internal audit contributes on diminishing inter-investors divergence. In East Asia, the independence on the audit committee is not enough to increase developmental performance there is needed both audit independence and legal expertise of directors to increase credibility of the financial statements for the investors especially when the ownership is concentrated (Woidtke T. and Yeh Y-H., 2013). Banks that have in their audit committees' busy directors are more likely to have a higher individual and total risk taking and banks that have in their audit committees' long board tenure have lower individual and total risk taking (Sun J., Liu G., 2014). They also find that company performance and risk management effectiveness are positively associated with banks that have in their audit committees' long board tenure, more female members and a large size audit committee. The relationship between the CEO and the board of directors is very important for the corporate governance and firm performance. Baldenius T., et al (2014) analyzed the CEO power regarding two aspects: if the CEO power controls the board nomination process and if the CEO can settle themselves by aggravating strategically the project complexity. In the first case the CEO tends to nominate an excessively focused on monitoring board and in the second case the CEO tends to nominate a board focused more on advising. The findings of the paper were that there is a negative association between the monitoring intensity of the CEO and the performance of the company. Bank governance and risk choice depend on the managerial ownership differences (Calomiris C.W. and Carlson M., 2016), they analyzed the central banks examination report analysis they considered that if the corporate governance is formal and the company has a high manager ownership then the two of them are negatively correlated and represents tools in resolving conflicts attracting outside funding sources in an environment that conflicts of interest are significant. They found that banks with low formal governance and high manager ownership have lower default risk and those banks that don't have formal governance and high manager ownership have greater reliance on cash in place of equity to limit risk. Formal bank governance determinates a higher tolerance for risk thus a better diversification of holdings of bank stock. An analysis of the implication of corporate governance on financial institutions (Zagorcheva A. and Gaob L., 2015) showed that in the US between 2002 and 2009 better governance has a positively impact on financial institutions performance and is negatively related to excessive risk-taking. Greater governance has a direct impact on higher provisions and reserves for the financial institutions in loan/asset losses. During the crisis the US the banks that had a directly report of the chief risk officer to the board of directors showed a higher performance that those who had the chief risk officer report first to the CEO Aebi V., et al (2012). The authors also analysed the standard corporate governance variables: board size, board independence and CEO ownership and found that during the crisis in the US banks the standard corporate governance variables are insignificant or more likely negatively related to banks performance. Thus we find interesting that the US banks before the crisis showed direct implication of the standard corporate governance variables, if the governance was better, then the bank had higher performance and during the crisis the corporate governance has an impact on the banks performance though chief risk officers reports, during the crisis the risk governance helps the bank perform and before the crisis better standard corporate governance variables were sufficient. This shows us that the US bank environment is an environment that conflicts of interest are relevant and the risk management may not receive as much attention that is needed.

An independent internal audit committee is related to greater quality in monitoring financial statements and the dual role of the CEO and chairman has an impact in diminishing this effectiveness of the independent audit committee in the non-financial companies Kamarudina K.A., et al (2012). The CEO duality has a negative impact on voluntary disclosure meanwhile the audit committee and board size and composition have a positively impact on voluntary disclosure Samahaa K., et al (2015). The frequencies of the audit meetings have a negative impact on the financial distress of Lebanese banks Sallouma C. et al (2014). Thus in this case the frequency of the audit meetings inhibit the financial distress of the banks and assures the effectiveness of the audit committee regarding the monitoring operation, the integrity of the financial statements and the effectiveness of the financial statements review, moreover the frequencies of the audit committee enhance bank performance. In China institutional environment the independence of the audit and the independent directors are mostly symbolic because of the lack of importance given to those variables as instruments that can influence the quality of financial reporting Wu H., et al (2015), the authors find that this two variables intertwine with conflicts of interest and power dependence. Audit firm size matters, most of the scientific papers associate the Big 4 auditors with higher quality audits and thus greater entity performance, better risk management and higher corporate governance (Lai K., 2013); Mo P. et al (2015); Chi H. and Weng T. (2014); Wang B. and Xin Q., (2011), one of the explanations can be that the Big 4 auditors are more concerned in maintaining their reputation than the non-Big 4 auditors. A study for small audit firms (Comprix J. and Huang H., 2015) showed that small audit firms have difficulties in constraining opportunistic managers but there is no evidence that the size of the audit firm can be correlated with real activity manipulation. We consider that the audit firm size and reputation are important in increasing the efficiency of a company regarding risk management and corporate governance

3. Methodology and data

The descriptive statistics of the variables included in our study is presented in Table 1. The investigate is based on data from 15 Romanian banks, analyzed for a ten years period (2003-2012).We have analyzed in our sample only commercial banks that have all the data available for the analyzed period, as reported by the Bureau Van Dijk database and the annual reports of the banks from our sample. Data is also obtained from the databases of the World Bank (Global Financial Development Database), and those related to banking industry were provided by ECB, Statistical Data Warehouse.

3.1. Definition of variables and expected signs

The variables and their description are presented in Table 1.

Table 1: Descriptive Statistics

Variables	Notation	Description	Expected Effect
Dependent			
Profitability	ROAA	The return on average total assets of the banks (%). ROAA calculated as net income divided by average total assets Or	
	ROAE	The return on average equity is defined as net income by average total equity	
Independent			
Bank-specific (internal factors)			
Capital adequacy	EA	Capital adequacy of a bank is measured by equity to asset ratio	+/-
Loan loss reserves rate	LLR	Loan loss reserve to gross loans	-
Management Quality	CIR	Cost to income ratio calculated as the operating costs over total income	-
Liquidity	LIQA	the ratio of liquid assets (cash and due from banks+ available for sale securities + government securities) to total assets (LIQA)	-
funding costs	FC	Interest expense on customer deposits as a percentage of average customer deposits	-
Income diversification of bank	NIIR	calculated as non-interest income over total gross revenues	+
Bank size	LNTA	Bank size is measured by the natural logarithm of the accounting value of the total assets of bank	+/-
Macroeconomic and Industry-specific Factors (External Factors)			
Economic Activity	GDP	GDP per capita growth (annual %)	+
Inflation	INF	The annual inflation rate (consumer prices)	+/-
~~Domestic credit*~~	~~DCPSB~~	~~domestic bank credit to private sector (% of GDP)~~	~~+/-~~
banking industry concentration	CR	Calculated as the assets of the five largest banks over total commercial banking assets (%)	+/-
Auditors Independence	AI	Dummy variable representing independent auditors	+
CEO duality	DUAL	Dummy variable CEO duality, if the CEO is also the CBO	-

*ID variable not included in the model

Source: Authors calculation

A brief description of the database, used as base for statistical calculations, being presented below.

Table 2: Data – brief description

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==========================================================
Statistic   N     Mean    St. Dev.    Min    Median    Max
----------------------------------------------------------
Year       150   2,007.5    2.882     2,003  2,007.5  2,012
ROAA       150    0.714     1.841    -10.940  0.870    3.980
ROAE       150    5.413    26.447   -256.540  8.375   42.570
EA         150   11.382     4.152      4.220 10.755   33.980
CIR        150   71.527    21.658     36.630 67.965  157.48
LIQA       150   35.464    20.084      1.920 31.395  109.32
FC         150    6.346     3.304      1.560  5.800   29.630
NIIR       150   36.709    14.444     -4.000 38.195   70.810
LNTA       150    8.734     1.364      4.670  8.880   11.250
LLR        150    5.297     5.991      0.160  3.500   34.990
CR         150   55.890     2.706     52.400 54.950   60.100
GDP        150    4.462     4.943     -6.020  5.425    9.750
INF        150    7.621     3.412      3.330  6.335   15.270
DCPSB      150   30.381    10.035     13.740 36.230   39.510
AI         150    0.593     0.493          0      1        1
DUAL       150    0.133     0.341          0      0        1
----------------------------------------------------------
```

Source: Authors calculation
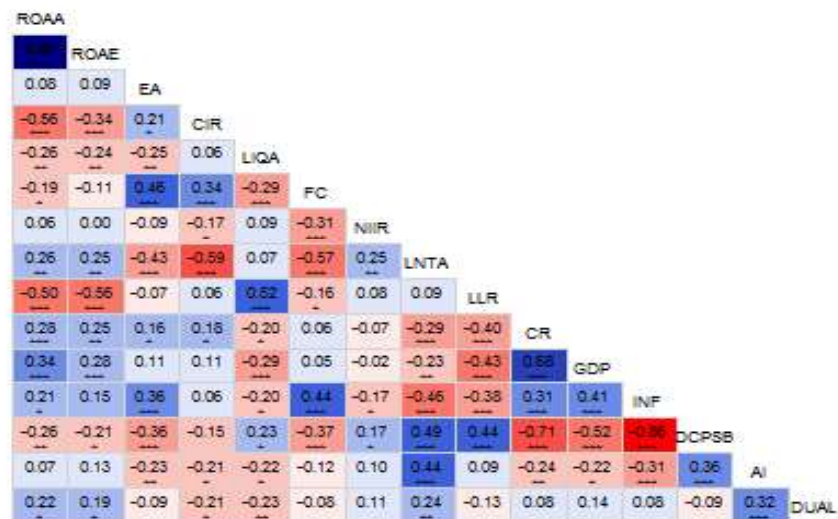The Pearson's correlation matrix is available in Figure 1.

Figure 1: Pearson's correlation matrix
Source: Authors calculation
Due to some correlations between DCPSB and other independent variables, we had decided to remove DCPSB from our model (see annex for VIF from the OLS regression).

3.2.The model
The general regression equation is the following:

$$Dv_t = c + \sum_{i=1}^{n} \alpha_i BSV_{it} + \sum_{j=1}^{m} \beta_j MV_{jt} + \chi \sum_{k=1}^{l} IS + \delta \sum_{l=1}^{2} IA + \mu_{it} \qquad (1)$$

where:
Dvt – Dependent variable, represented by banking profitability;
BSV – Bank specific variables;
MV – Macroeconomic variables;
IS - Industry-specific variables;
IA – Internal Audit variables (dummy variables coded with 0 or 1)
i, j, k – counters by categories in independent variables;
t – Time period (2003-2012);
N, M – numbers of independent variables;
α, β, γ, δ–Coefficients (estimated parameters);
c-constant;
u_{it} – Idiosyncratic errors.

3.3. Panel Data Multiple Linear Regression Model Testing Results
In panel data models, panel id variable is Bank, and time variable is Year. The results of fixed effects (within) regression, naive and robust, and random effects, default standard errors and robust, are shown below:
 *Hypothesis Testing and Model Choosing f*or fixed effects, the *F test* results are shown below:
Table 3: F test results

F test for individual effects
ROAA F = 2.1682, df1 = 14, df2 = 123, p-value = 0.01253 alternative hypothesis: significant effects
F test for individual effects
ROAE F = 1.1842, df1 = 14, df2 = 123, p-value = 0.2957 alternative hypothesis: significant effects

Source: Authors calculation
As tests suggests, we conclude that fixed model is a better choice than ordinary least squares models.
For random effects, *Breusch-Pagan LM test* results suggests that random effects model is not appropriate.

Table 4: Breusch-Pagan LM test results for balanced panels

Lagrange Multiplier Test - (Breusch-Pagan) for balanced panels
ROAA chisq = 2.6972, df = 1, p-value = 0.1005 alternative hypothesis: significant effects
Lagrange Multiplier Test - (Breusch-Pagan) for balanced panels
ROAE chisq = 0.50228, df = 1, p-value = 0.4785 alternative hypothesis: significant effects

Source: Authors calculation

Testing for time-fixed effects shows that no time effects should be used (see results below).

Table 5: Breusch-Pagan LM test results for time-fixed effects

Lagrange Multiplier Test - time effects (Breusch-Pagan) ROAA chisq = 0.41651, df = 1, p-value = 0.5187 alternative hypothesis: significant effects
Lagrange Multiplier Test - time effects (Breusch-Pagan) ROAE chisq = 0.41651, df = 1, p-value = 0.4169 alternative hypothesis: significant effects

Source: Authors calculation

4. Empirical Results

The results for OLS regression robust errors are presented in Table 6.

Table 6: Results for OLS regression robust errors

	OLS ROAA	OLS ROAE
EA	0.112**	1.890*
	p = 0.046	p = 0.088
CIR	-0.046***	-0.271**
	p = 0.00000	p = 0.029
LIQA	0.011	0.297*
	p = 0.169	p = 0.051
FC	-0.091*	-0.621
	p = 0.099	p = 0.247
NIIR	-0.004	-0.125
	p = 0.636	p = 0.512
LNTA	0.022	4.155
	p = 0.873	p = 0.106
LLR	-0.128**	-2.688**
	p = 0.031	p = 0.043
CR	0.083**	0.647
	p = 0.029	p = 0.152
GDP	0.060***	0.714***
	p = 0.008	p = 0.006
INF	0.013	-0.146
	p = 0.748	p = 0.774
AI	0.468	10.569*
	p = 0.117	p = 0.076
DUAL	0.058	0.129
	p = 0.825	p = 0.971

	OLS ROAA	OLS ROAE
Constant	-1.711	-65.252
	p = 0.543	p = 0.118
Observations	150	150
R2	0.640	0.529
Adjusted R2	0.609	0.488

Residual Std.		
Error (df = 137) 1.152	18.927	
F Statistic		
(df = 12; 137) 20.302***	12.827***	
Notes: ***Significant at the 1 percent level.		
**Significant at the 5 percent level.		
*Significant at the 10 percent level.		

Source: Authors calculation

The results of fixed effects (within) regression, clustered (by bank) robust errors are shown below:

Table 7: Fixed effects results, panel data clustered (by bank) robust errors

```
            Fixed effects ROAA     Fixed Effects ROAE
------------------------------------------------
EA              0.080                  1.415
                p = 0.197              p = 0.150
CIR             -0.047***              -0.211
                p = 0.001              p = 0.409
LIQA            -0.001                 0.114
                p = 0.897              p = 0.503
FC              -0.069                 -0.036
                p = 0.554              p = 0.968
NIIR            -0.019                 -0.454
                p = 0.486              p = 0.420
LNTA            -0.325                 6.558
                p = 0.444              p = 0.396
LLR             -0.110***              -1.978***
                p = 0.001              p = 0.010
CR              0.058                  0.861
                p = 0.263              p = 0.281
GDP             0.072**                0.849*
                p = 0.027              p = 0.071
INF             -0.037                 -0.038
                p = 0.662              p = 0.979
AI              0.856***               6.268
                p = 0.005              p = 0.168
DUAL            -0.431***              -4.293
                p = 0.004              p = 0.318
```

Observation	150	150
R2	0.572	0.403
Adjusted R2	0.482	0.277
F Statistic		
(df = 12; 123) 13.724***	6.923***	

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Notes:  ***Significant at the 1 percent level.
          **Significant at the 5 percent level.
          *Significant at the 10 percent level.
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Source: Authors calculation

We were interested to find if the presence of corporative governance and internal audit rules (delta in the models) have had impact on bank profitability in the analyzed period of time. We used in the model two dummy variables for AI and DUAL (coded with 1 for having AI – independent auditors and DUAL – CEO duality or 0 for not having these), and we find that AI has the expected effect – positive effect and statistically significant on both ROAA and ROAE.

Conclusions

The empirical study suggests that having independent auditors (AI) has benefic effects (positive sign and statistically significant coefficient) on ROAA (confirmed by fixed effect

panel data model) and ROAE (confirmed by OLS regression). CEO duality (DUAL) has the expected impact on reducing the profitability ROAA (coefficient has negative sign and it is statistically representative).

We can conclude that in the presence of the AI, the bank profitability ROAA is improving with 0.856, while ROAE is higher with 10.569 (the banks with AI have higher bank profitability than other banks), while not having different CEO and CBO is estimated to reduce ROAA with 0.431 (the profitability is higher in banks with different CEO and CBO).

The findings of our paper confirm other studies such Baldenius T., et.al, (2014), the research finding that there is a negative association between the monitoring intensity of the CEO and the performance of the bank, and Samahaa K., et.al, (2015), a survey that observes CEO duality negative impact on voluntary disclosure, affecting the profitability of an entity.

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ACKNOWLEGMENT

Annex 1. Variance Inflation Factor (VIF)

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VIF's after removing DCPSB
======================================================================
EA   CIR LIQA FC  NIIR LNTA  LLR  CR   GDP  INF  AI  DUAL
----------------------------------------------------------------
1.510 1.782 1.919 2.088 1.140 2.909 1.847 2.067 2.256 2.040 1.658 1.294
------------------------------------------------------------------------
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