MEASURING THE FINANCIAL PERFORMANCE OF THE EUROPEAN SYSTEMICALLY IMPORTANT BANKS

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Abstract

This paper investigates the major determinants of bank performance in the European sector, taking into consideration the most important financial groups from this region. To account for performance, we have applied two fixed-effects regression models to a panel of European banks that covers the period 2004-2012, where profitability was assessed through two variables, namely return on average equity and net interest margin. The estimation results show that all bank-specific determinants affect bank profitability significantly, but not always in the anticipated way. Finally, the business cycle has a positive, albeit asymmetric impact on bank profitability, suggesting that profitability is pro-cyclical.

Keywords: : Profitability, crisis period, too-big-too-fail, static panel regression, Moore-Penrose

JEL Classification: G21, G28, C33

1. Introduction

Bank performance has been one of the main concerns of managers, researchers, investors and scholars in the last decade. This concern is related to the noteworthy influence of the profitability of corporate organisations in general, and banking institutions in particular, on the potential growth of the economy as a whole. In this respect a study regarding the determinants of corporate performance, consequently, could support managers, scholars and policy makers in establishing the best strategies to deal with the rising uncertainty of the globalised environment.

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The main objective of this research is to empirically investigate the main determining factors of bank profitability in the European banking sector, in this respect focusing on the largest 20 financial groups with their headquarter in Europe and operating at an international level.

In the literature there were observed several interesting papers with reference to the topic of this research. First of all, it can be mentioned the paper of Molyneux and Thornton (1992) who were among the first who investigated bank profitability determinants for 18 European countries between 1986 and 1989. Another significant work was the one of Goddard et al. (2004), who focuses on six European banking sectors between 1992 and 1998. More recently, Trujillo-Ponce (2013) has empirically examined the main determinants of Spanish banks' profitability for the period 1999-2009. Our paper is similar to the mentioned studies especially regarding the methodology employed, but it is also different in some parts. This study provides additional insights into the debates regarding the importance of the too-big-to-fail banks, because it focuses on the largest financial groups in Europe. Moreover, in this study it was extended the period analysed and it comprises the impact of both the global financial crisis and sovereign debt crisis.

The rest of the paper is structured as follows. Section 2 positions the survey within the existing literature regarding bank profitability and efficiency. Section 3 discusses the methodological approach employed in this paper, namely a static panel regression with fixed effects. Section 4 presents the empirical results regarding the determinants of bank performance and efficiency in the European arena. Section 5 summarizes and concludes.

2. Related literature

The financial world is currently under the sign of extreme changes, produced in a high extend by the metamorphoses in the financial markets, and also by the legislative and institutional changes, noticing the redoubtable impact on the banking markets.

The notion of performance has been approached over the years in numerous studies and analyses, and in the academic writings, the concept of "performance" is associated with the concepts of "profitability" and "efficiency". In most of the studies, bank profitability is expressed by three representative indicators, namely Return on Average Assets, Return on Average Equity and Net

Interest Margin. In this respect we can observe the following papers, which considered at least one of the mentioned variables: Bourke (1989), Staikouras and Wood (2004), Park and Weber (2006), Pasiouras and Kosmidou (2007), Athanasoglou et al. (2008), Albertazzi and Gambacorta (2009), Millon Cornett et al. (2010), Dietrich and Wanzenried (2011), Kanas et al. (2012), among others. Despite the mentioned papers, there were identified studies where there were considered other variables for measuring profitability, such as the study of Molyneux and Thornton (1992), who included as a profitability indicator the net profit after tax with staff expenses and provisions for loan losses, or Lee et al. (2014a), who included the ratio of net non-interest income to net operating income as a non-interest income measure.

The recent events in the global financial markets draw the attention to the banking sector and its performance therefore most of the recent studies include the impact of the international economic crisis on the financial system. Given the severity of the global financial crisis and its repercussions, it was essential to study the impact of the recent economic recession on the banking sector, therefore the majority of the studies published from 2009 until now include issues related to this subject. For example, Millon Cornett et al. (2010) studied the implications of government ownership and government involvement in a country's banking system on bank performance, the period studied being 1989-2004. They found that state-owned banks operated less profitably, held less core capital, and had higher credit risk than privately owned banks prior to 2001, and the performance differences are more significant in those countries with greater government involvement and political corruption in the banking sector. On the other hand, Beltratti and Stulz (2012) outlined that large banks with higher Tier 1 capital levels and more deposit financing at the end of 2006, exhibited considerably larger returns during the crisis. Beside these papers there were also noticed the studies of Dietrich and Wanzenried (2011), Erkens et al. (2012), Aebi et al. (2012), Beltratti and Stulz (2012), Bourkis and Nabi (2013) etc.

Following the early work of Short (1979) and Bourke (1989), a number of recent studies tried to identify some of the major determinants of bank performance. In most of the cases, the researchers selected the variables by following CAMELS model (Capital strength, Asset quality, Management quality, Earnings,

Liquidity and Sensitivity to market risk). Despite this, the number of variables differs noticeably among studies. For example, in the literature it strongly examined the relationship between asset quality and bank performance, observing that an increase in doubtful assets requires a bank to assign an important portion of its gross margin to provisions to cover expected credit losses; as a result the profitability level will be inferior. Among the studies that state a direct link between profitability and asset quality are Angbazo (1997), DeYoung and Rice (2004), Hernando and Nieto (2007), Athanasoglou et al. (2008) and Chiorazzo et al. (2008). Nonetheless, if the financial system is well remunerated, riskier loans could determine an enhancement of interest income, with a positive influence on profitability (Iannotta et al., 2007; Kasman et al., 2010).

Moreover, capitalization is also one of the most commonly used determinants of bank profitability. Overall, there are several reasons to believe that a better capitalized bank is more profitable. In this respect, Berger (1995) outlines that the expected bankruptcy costs hypothesis is considered as a consequence of all or a part of the observed positive relationship between capital and profitability. He stated that a bank with capital below the equilibrium level, should register a higher level of expected bankruptcy costs; moreover a growth in capital ratios raises expected profits, by diminishing interest expenses on uninsured debt.

Another intensely discussed factor in the speciality literature is the one regarding bank size. Generally, the relationship between bank size and bank performance is considered positive (i.e. Iannotta et al., 2007; Mercieca et al., 2007), but there are several studies where it was suggested that the impact of size could be non-linear with profitability growing with size and falling for bureaucratic and other reasons (i.e. Athanasoglou et al., 2008).

An important strand of the literature has focused on the impact of the economic environment on bank performance, taking into consideration the business cycle, inflation, interest rates, monetary policy and other aspects. One of the most frequently used macroeconomic determinants of bank performance, which allows for controlling business cycle fluctuations, is GDP growth rate or GDP per capita. Bernake and Gertler (1989) state that in recession, the quality of loans declines and firms borrow at higher margins, thus is expected a negative link between spread and economic growth. Moreover, Claeys and Vander Vennet (2008) outline that the

prevailing business cycle conditions influences significantly net interest margins.

On the whole, the above mentioned empirical studies reflect controversial results, following the particularities of the analysed countries, the different macroeconomic conditions, the used dataset, but also the covered period of time.

3. Methodology and data

In this section we discuss the empirical model used to assess the level of bank profitability across the biggest 20 financial groups in Europe.

3.1. Methodology

A vast empirical literature employs *panel data regression* in assessing bank performance. This technique is known for its advantages, respectively: a low multicollinearity, increased efficiency of econometric estimates and results of a higher accuracy. More specifically, panel data are better able to study complex issues of dynamic behaviour (Raj and Baltagi, 1992).

Among the papers that applied this type of analysis, it can be observed that the focus was on a geographic distinction, thus a large part oriented to the European space, such as: Diaz et al. (2004), Staikouras and Wood (2004), Pasiouras and Kosmidou (2007), Athanasoglou et al. (2008), Koutsomanoli-Filippaki and Mamatzakis (2009), Dietrich and Wanzenried (2011), Chortareas et al. (2012), Mirzaei et al. (2013), Jackowics et al. (2013) and Rughoo and Sarantis (2014).

The scientific approach from our paper involves a static panel regression approach, where the estimation technique used was ordinary least squares. More specifically, our paper is based on several studies among which we can notice the following: Fang et al. (2013), Alper and Anbar (2011), Molyneux et al. (2010), Hass and Lelyveld (2011), Berger and Bouwman (2011), Baltzer et al. (2008), Pasiouras and Kosmidou (2007), Havrylchyk and Jurzyk (2006), Baltagi (2005) etc.

The general linear regression model employed in this paper is:

$$Y_{it} = \alpha_0 + \beta_{mit} X_{mit} + \beta_{dit} X_{eit} + \varepsilon \tag{1}$$

Where i refers to an individual bank; t refers to year; j refers to the country in which bank i operates; Y_{it} the dependent variable that refers to the return on average equity or net interest margin (ROAE or NIM) and is the observation of a bank i in a particular year t; X_m represents the internal factors/determinants of a bank; X_e represents the external factors/determinants of a bank; ε is an error term.

Following we continued by testing the appropriate effects applicable, namely fixed or random, pointing out that random effects model is relevant in the case of isolated events that can generate implications. The consistency of the model is determined through Hausman specification test[1], so in case that the null hypothesis is not accepted the test has a Chi-square distribution, with the degrees of freedom equal to the controlled variable in the model. Continuing we are applying stationary tests and in order to provide more accurate results we have selected three types of tests, namely Levin, Lin and Chu, Harris-Tzavalis, and Breitung test. These unit root tests are considered to be first generation tests and their null hypothesis presumes that all the panels contain a unit root. The assumption of normality is tested with Jarque-Bera test, and the test for heteroskedasticity is available for the fixed-effects model using Breusch-Pagan / Cook-Weisberg test. Breusch-Pagan / Cook-Weisberg tests the null hypothesis that the error variances are all equal versus the alternative that the error variances are a multiplicative function of one or more variables (a large chi-square would indicate that heteroskedasticity was present). In the case of serial correlation it was applied the Wooldridge test for autocorrelation in panel data. However, in the case of our research it was used a user-written program to perform this test.

3.2. Data

The dataset used in our research is composed of individual data for the biggest financial groups operating in Europe. We restricted the investigation to the largest 20 European financial groups being classified after their assets. The data were obtained from financial and annual reports of the banks from our sample and

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[1] The Hausman statistic is: H = $(b_1 - b_0)'$ (Var (b_0) –Var (b_1)) † $(b_1 - b_0)$, where † denotes the Moore-Penrose pseudo inverse. Under the null hypothesis, this test has asymptotically the chi-squared distribution with the number of degrees of freedom equal to the rank of matrix Var(b_0) - Var(b_1). If we reject the null hypothesis, it means that b_1 is inconsistent.

from BankScope database. The data referring to macroeconomic variables were mined from World Bank and ECB reports.

The period selected to be analysed is 2004-2012, using annual data for nine years, and the most important selection criterion used was the one referring to data availability.

According to the literature, bank performance is expressed by three representative indicators, namely Return on Average Assets (ROAA), Return on Average Equity (ROAE) and Net Interest Margin (NIM). In this paper it was used the first rate, namely ROAE which indicates the returns generated by bank's assets and is calculated as a ratio between the net income and average total assets, as a percentage. It was also used the net interest margin (NIM) which is defined as the net interest income expressed as a percentage of average earning assets and reflects the profit obtained by a bank from interest-earning activities. More specifically, this paper considered the two mentioned factors as dependent variables due to the enlarged efficiency and more accurate statistical results obtained.

The set of independent variables taken in our study includes several determinants of bank performance and stability, which refer to bank-specific factors, but also to aspects particular to the banking industry and macroeconomic environment. In this research we have used eight proxies as performance determinants.

Capital requirement is the amount of capital a bank or a financial institution has to hold as required by the monetary authority or financial regulator. In our paper we have chosen to proxy capital requirement through capital adequacy rate (CAR), which clarifies what proportion of bank's total assets is financed by its shareholders. Moreover, we have chosen a second core measure of a bank's financial strength from a regulator's point of view, namely TIER 1. This variable is composed of core capital, which consists primarily of common stock and disclosed reserved, but may also include non-redeemable non-cumulative preferred stock. It was observed that several studies have focused on the relationship between capital and bank profitability. For example, Berger (1995) examined the relationship between the return on equity and the capital asset ratio for a sample of US banking groups for the period 1983-1992. He showed that the return on equity and capital adequacy ratio tend to be positively interconnected. Similarly, Abreu and Mendes (2002) evaluated the determinants of bank interest margins and profitability in an European framework, reporting that well-capitalized banks faced

lower bankruptcy and funding costs and this advantage translated into better profitability.

In order to measure *asset quality* we have chosen the ratio of impaired loans to total loans (IL). An increase in the doubtful assets, which does not accumulate income, obliges financial entities to assign a significant portion of its gross margin to provisions in order to cover expected credit losses, consequently profitability may be affected.

Management quality is a major aspect that influences the soundness of a bank. In most of the studies, the proxies used to sketch the operational efficiency, or more specifically the quality of the management, were the cost-to-income ratio (CIR) and the non-interest expense over total assets ratio. In this study it was selected the first one, which reveals the aptitude of a bank to cover its operating expenses from the obtained income and is expected a negative relationship on bank performance. In addition, in the academic writings it was identified a positive and highly significant impact of management quality on bank profitability, i.e. Athanasoglou et al. (2008), Dietrich and Wanzenried (2011), Garcia-Herrerro et al. (2009), Pasiouras and Kosmidou (2007) etc. The effect suggested implies that operational efficiency is a prerequisite for improving bank profitability, with the most profitable banks having the lowest efficiency ratios.

The following determinant selected refers to asset structure and it can be perceived the common thinking that bank's profitability is projected to increase as its portfolio of loans progresses in relation to other more safe assets, taking into consideration the connection between risk and return. The ratio of loans to total assets (LR) refers to the fact that loans are risky assets, and their large share in bank's assets means a growth of the bank's exposure to risks. Thus, a high value of this indicator could also mean a possible weakening of the bank's assets quality with a negative effect upon stability. On the other side, we consider the fact that banking loans are the main income source for a bank, therefore, a high level of this indicator is expected to have a positive impact upon profitability and stability, since the bank registers a growth in the interest income.

The relationship between bank size (BS) and profitability is perceived to be positive, outlining that a larger size could allow the bank to register economies of scale but there were observed several studies that obtained mixed results (see Sufian, 2009; Pasiouras and

Kosmidou, 2007; Dietrich and Wanzenried, 2011). The relationship between bank size and profitability it's generally considered to be positive, outlining that a larger size should allow a financial institution to obtain economies of scale; in this respect there can be distinguished various studies, such as Iannotta et al. (2007) and Mercieca et al. (2007). Still, there is unanimity in the reviewed studies which says that the average cost curve in banking has a fairly flat U-shape, with medium-sized banks being somewhat more scale efficient than large or small banks.

The last group of determining factors is formed of external determinants, namely the ones referring to the business cycle. In this respect, economic activity was proxied by annual real GDP growth rate (GDPG). In the literature it was shown that there exists a strong relationship between economic activity and bank profitability. Consequently, an economic recessionary slide can affect in a negative manner the quality of the loan portfolio, determining credit losses and amplifying the provisions that banks must have, as a result reducing bank profitability. Contrariwise, a development of the economic activity will generate an improvement of the borrowers' solvency, and also an increasing of the demand for loans, which has a positive effect on bank profitability (Demirgüç-Kunt and Huizinga, 1999; Mendes and Abreu, 2003; Naceur, 2003; Pasiouras and Kosmidou, 2007).

Secondly, in the academic writings it was revealed that the effect of inflation (INF) on bank profitability depends on the way that inflation influences both salaries and the other operating costs of the bank. The positive relationship between inflation and profitability is confirmed by various studies, such as Molyneux and Thornton (1992), Claessens et al. (2001), Staikouras and Wood (2004), Athanasoglou et al. (2008), Claeys and Vander Vennet (2008), Garcia-Herrerro et al. (2009), among others. However, Naceur and Kandil (2009) find that the inflation rate negatively influences interest margins. It can also be argued that the negative influence may be related to the slower adjustment of banks' revenues compared with the costs for inflation.

4. Empirical results

Preceding analysis itself, it shall be performed the descriptive statistics procedure for the variables taken into the study, with the purpose of describing the main feature of the data collection, using

some commonly measures of central tendency, namely the mean and some measures of variability, which includes the standard deviation (see Table 1).

Table 1

Summary statistics

	2004-2008		2009-2012	
	Mean	**S.D.**	**Mean**	**S.D.**
ROAE	12.23	9.62	3.43	10.45
NIM	1.30	0.61	1.42	0.62
CAR	11.42	1.56	14.12	2.18
TIER1	8.36	1.60	10.81	2.52
IL	3.00	1.92	4.71	2.65
LR	43.94	15.68	44.42	14.35
CIR	61.34	13.88	61.75	9.59
BS	20.74	0.56	20.94	0.56
GDPD	0.59	0.54	-0.42	1.06
INF	2.14	0.8	2.21	1

Note: S.D. stands for the standard deviation.
Source: authors' calculation

Regarding the descriptive statistics it can be observed that the mean, which is one of the most common measures of central tendency, is higher in the case of return on average equity, capital adequacy rate and annual growth of GDP, for the period 2004-2008, compared to 2009-2012. In this respect it can be stated that during the crisis, the economic activity has severely declined, thus influencing bank activity, or more specifically bank profitability.

Continuing we have applied the stationary tests mentioned above, namely Levin, Lin and Chu, Harris-Tzavalis, and Breitung test, being considered first generation unit root tests (see Table 2).

Table 2

Stationary tests employed in the analysis

	Levin, Lin and Chu	**Harris-Tzavalis**	**Breitung**
ROAE	-7.98	0.15	-1.30
	(0.00)	(0.02)	(0.09)
NIM	-15.02	0.30	-0.91
	(0.00)	(0.41)	(0.17)
CAR	-11.69	0.23	-2.73
	(0.00)	(0.16)	(0.01)

	Levin, Lin and Chu	**Harris-Tzavalis**	**Breitung**
TIER1	-9.12	-0.39	-5.75
	(0.00)	(0.00)	(0.00)
IL	-18.36	-0.47	-5.71
	(0.00)	(0.00)	(0.00)
LR	-22.42	0.24	-0.36
	(0.00)	(0.21)	(0.35)
CIR	-16.37	-0.20	-2.62
	(0.00)	(0.00)	(0.01)
BS	-15.32	0.42	0.30
	(0.00)	(0.90)	(0.61)
GDPD	-8.46	-0.09	-6.28
	(0.00)	(0.00)	(0.00)
INF	-16.95	-0.32	-4.14
	(0.00)	(0.00)	(0.00)

Note: it was included the time trend; in () is represented the p-value. There are represented the following: for Levin, Lin and Chu test is represented the adjusted t, for Harris-Tzavalis test is represented rho statistic and for Breitung lambda statistic.
Source: author's calculation

From the results obtained we distinguished the fact that all the variables included are stationary at least for one of the tests applied.

Table 3

Hausman test for ROAE and NIM

Dependent variables	ROAE		NIM	
Independent variables	**Coefficient**		**Coefficient**	
	Fixed	**Random**	**Fixed**	**Random**
CAR	0.10	0.11	-0.43	-0.04
TIER1	-0.37	-0.51	0.06	0.06
IL	-1.96	-1.62	0.02	0.02
LR	-0.22	-0.20	0.03	0.03
CIR	-0.41	-0.39	-0.01	0.01
BS	0.27	-1.13	-0.01	0.01
GDPG	3.29	3.23	0.01	0.01
INF	-1.07	-1.14	-0.11	-0.11
Chi^2	4.11		0.46	
Prob. $> Chi^2$	0.84		0.99	

Source: authors' calculation

The result of Hausman, showed us that there are no significant differences between the two types of effects (see Table 3).

The results show that there are significant differences regarding the influence of various factors on the two dependent variables selected, namely return on average equity and net interest margin (see Table 4).

Table 4

Empirical results for panel data analysis

	Dependent variables		
	ROAE	**NIM**	**ES**
c	7.4***	0.93***	
	(0.69)	(0.19)	
CAR	-0.61**	0.03**	**+/-**
	(0.32)	(0.01)	
TIER1	-1.02***	0.06***	**+/-**
	(0.24)	(0.01)	
IL	-0.38***	-0.02	**-**
	(0.08)	(0.02)	
LR	-0.01*	0.02***	**+/-**
	(0.01)	(0.03)	
CIR	-0.02***	0.01	**-**
	(0.01)	(0.001)	
BS	0.31***	-0.09**	**+/-**
	(0.11)	(0.04)	
GDPG	0.07**	-0.01	**+**
	(0.03)	(0.01)	
INF	0.11**	-0.07***	**+/-**
	(0.05)	(0.02)	
R-sq. within	0.53	0.38	
Rho	0.31	0.74	
Obs.	153	178	

Note: ES stands for the expected sign; Absolute value of t statistics * significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. In ( ) we have standard deviations. R-sq. stands for R square and Obs. for the number of observation.
Source: author's calculations

In the first case, capitalization was expressed through two variables, namely capital adequacy rate (CAR) and core measure (TIER1). In the case of the financial groups selected this issue is a major concern, mainly because they are internationally exposed. In the literature there were observed mixed results, some of the studies

evoked a positive relationship between capital adequacy and bank profitability and some of them a negative one. The results of our research are in line with the literature in the case of net interest margin. Though in the case of return on equity both of the variables have a significant and negative impact on bank profitability aspect that can be explained through the mutations in the banking market from the recent period. Contrariwise, regarding the influence on net interest margin it was perceived a significant and positive impact, result that is in line with those obtained by Goddard et al. (2004), Athanasoglou et al. (2008), Dietrich and Wanzenried, (2011) and Trujillo-Ponce (2013).

Following, asset quality is expressed in our model by the ratio of impaired loans (IL), which, as it was expected, has a negative impact on banking profitability in all the financial groups studied. The negative relationship specifies that banks with a high level of credit risk displays lower levels of profitability. It's important to observe that the damage is not uniform between financial entities, so larger institutions recorded a higher level of this indicator. However it must be perceived that arbitrage prudential measures taken by central banks and/or the relaxation of pro-cyclical prudential standards in order to maximize short-term profits, influences on a medium-term the portfolio quality. Our results suggest a direct and strong relationship between bank profitability and asset quality consequently they are in line with those obtained by Angbazo (1997), DeYoung and Rice (2004), Hernando and Nieto (2007), Athanasoglou et al. (2008) and Chiorazzo et al. (2008).

Regarding asset structure, the variable selected was the liquidity ratio (LR) and as we mentioned in the theoretical part of our study, the impact of this variable on profitability is unpredictable. Our results reveal, in particular, a negative and statically significant coefficient for the return on average equity, which can be explained by the fact that the banks in those countries registered a high value of this indicator in the pre-crisis period, which caused an increase in banks income, with a positive impact on profitability. However, due to the financial crisis, these banks recorded a significant increase in the level of impaired loans and loan loss reserves, which had a negative impact on profitability. In the case of net interest margin the impact was positive and statistically significant, aspect that is in line with the results obtained by McKenzie and Thomas (1983), Angbazo (1997), Barros et al. (2007), Chiorazzo et al. (2008), DeYoung and Rice

(2004), Goddard et al. (2004), Iannotta et al. (2007), Molyneux and Thornton (1992), Pasiouras and Kosmidou (2007), and Wagner (2007).

Management quality is exposed in this research through the cost-to-income ratio and we can easily observe that it's statistically significant just in the case of return on average equity, where an increase in the ratio will generate a decrease in profitability, in line with our expectations.

As we mentioned before, the impact of *bank size* (BS) on profitability is ambiguous. Empirical results show that this variable is statistically significant in the case of both variables, but in one case has a positive impact and in the other a negative one. Larger banks obtain a larger share of their income in the form of non-interest income such as trading income and fees so large banks appear to be relatively active on the capital markets on both the assets and liabilities sides of the balance sheet. In various studies it was noticed that banks with large absolute size tend to be more profitable, while they also have a higher bank risk (larger size should allow the bank to obtain economies of scale). Moreover, Elsas et al. (2010) conclude with the fact that economies of scale, which may imply larger size, are pronounced in banking sector conducting to a higher profitability while Barros et al. (2007) suggests that bigger and more diversified banks are more likely to perform poorly, consequently smaller and specialized banks can reduce asymmetric information problems associated with lending.

In our research the economic activity was represented by the annual growth of GDP and also by the inflation rate. GDP is a significant external factor that influences banks profitability, although it's worth mentioning that the sign of the coefficient is different in the two cases. Several studies reflect the fact that it exists a significant relation between the business cycle and bank profitability, suggesting that each contraction of real GDP, especially during recessions are found to have a persistent negative effect on bank profitability. Contrary the relationship between GDP and bank profitability could be sometimes pro-cyclical. There were noticed some reasons why the effect of growth in GDP can affect profitability in a negative or positive manner, for example bank credit could decrease during economic down swings. In this respect we observe some studies that found the same results as our analysis, namely, Naceur et al. (2003), Athanasoglou et al. (2008) and Munyambonera (2009).

Inflation (INF) is often cited as one of the main macroeconomic determinants of bank profitability, so the effect of inflation depends on whether banks operating expenses are increasing faster than the inflation rate level. Inflation implications on profitability of a bank depend on the capacity of bank's management to forecast inflation (Perry, 1992). Our results show mixed results, aspect that it's in line with the speciality literature. We observed that in the related literature inflation is generally positively related to bank profitability, which could suggest that during the period studied the level of inflation were anticipated by bank management, and a correct predicting of it gave banks the opportunity to adjust the interest rates accordingly and consequently to earn higher profits.

Overall, we observed that the best results were obtained in the case of the return on average equity therefore all the variables were statistically significant in this case compared to net interest margin where only five of the independent variables were statistically significant.

5. Concluding remarks

The international crisis radiography reveals ample implications of the recession on the banking sector in terms of deceleration in lending, deteriorated level of bank performance indicators, and tightened banking regulations. This study aimed to sketch a picture of the European banking context, in order to determine and monitor the main determinants of the "health" and performance of European financial institutions.

The empirical results of our research, outlines the fact that the analysed variables had a rather heterogeneous impact on bank profitability, due to the particularities of each country and to different macroeconomic environments in which banks operate. Among the internal factors, our study showed that a significant impact on bank profitability in most of the financial groups analysed, had capitalization, asset structure and asset quality, management quality and also bank size, in line with the results observed in the related literature. Regarding external determinants, namely annual GDP growth rate and inflation, we have registered an essential influence on bank profitability and efficiency, in line with our expectations.

Despite the insights that this paper brings, it also has some limits, therefore future research directions are following a well-defined

path, targeting an extension of the time period studied and of the sample analysed.

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