THE EFFECTS OF GLOBAL FINANCIAL CRISIS ON THE BEHAVIOUR OF EUROPEAN BANKS: A RISK AND PROFITABILITY ANALYSIS APPROACH

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Abstract. *The effects of global financial crisis have been severe on banks. Many banks went bankrupt and many are in distress due to their sensitivities, stored in their balance sheets, to financial risks enlarged by the crisis. Some of banks, on the other hand, have felt the effects slightly. Recalling that total risk is sum of two parts of risk namely; volatility and sensitivity and that volatility is not under the discretion of banks, i.e. externally determined, it is assumed that the degree of banks getting affected by the global financial crisis is largely dependent on their sensitivities to risks. Banks' sensitivities to risks are assumed to be under the control of banks. Thus, in line with their risk appetite, banks can always change the structure of their balance sheet to alter their sensitivities to financial and non financial risks. In this paper it is targeted to analyze and compare the balance sheet structure banks from 27 European countries in order to find their sensitivities to different financial risks such as credit risk and liquidity risk. It will further be analyzed how banks' balance sheet structures have been altered after the crisis. To observe the behavioural variations (if there is any) of banks getting affected by financial crisis, the analysis is widened to include different characteristics of banks such as; the country where they are operating, region where they are belong to, scale of their operations, their ownership, their type and etc..*

JEL: *G15, G21, G32*

KEYWORDS: Global crisis, banking, balance sheet structure.

Introduction

Banks are intermediary institutions that borrow funds from surplus spending units (SSUs) for lending to deficit spending units (DSUs)(Sinkey (1989)).Depositing their money in banks, SSU's target to secure a certain rate of return on their savings while immunizing their investments against all types of risks. On the other hand, the main purposes of DSUs those borrow from banking industry are to fix the cost of their borrowings and protect themselves from the effects of risks. This helps both SSUs and DSUs to eliminate uncertainty related to their operations.

These purposes of DSUs and SSUs increase pressure on banks to undertake the unwanted risks that they are exposed to. Thus by providing their customers with intermediation activities, banks implicitly purchase those unwanted risks from the customers that wishes to be free of them. This leaves banks with the management of risks bourn of their activities yet allow them to charge their customers with a risk premium. Thus, one of key issues in banking is the management of risks in order to secure a certain rate of return on capital and/or maximizing the value of their shareholders' equities.

This is easily done in prosperous times. However, in the times of financial disasters it becomes a major threat to the profitability and/or market value of banks. This works in different ways for risk prone and risk averse banks. Recalling that risk is composed of two parts namely; volatility and sensitivity, (Eken, (2005)), risk prone (averse) banks' usually prefer a high (low) level of sensitivity to volatility which is a nondiscretionary factor. Thus in the times of financial turmoil it is expected that risk prone banks' profitability will get affected badly much more than risk averse banks. On the other hand, when volatility is at relatively low levels, risk prone banks' profitability will remain higher than risk averse banks' figures, provided all the other things remain constant.

Volatility goes up sharply during financial turmoil periods and therefore the risk taking preferences of investors and banks is widely believed to shrink to their minimum levels. It is believed that even risk prone investors move towards the direction of becoming risk averse in order to limit their exposure to default risk and other financial and non-financial risks. De Haas and Van Horen (2009) provided evidence that during financial crisis banks tend to increase their activities with regard to monitoring and screening of borrowers in order to better control their exposures to default risk. Ivashina and Scharfstein (2010) indicated that banks lending fell significantly during the financial crisis. The largest fall was of those banks that had limited access to financing with deposits.

On the other hand regulators target to control and/or minimise banks' lending activities by imposing tighter regulations. Barajas et al. (2010) examined the effects of tighter liquidity and capital constraints on the ability of banks' lending activities. Their results indicated that rather than liquidity, capital constraints were found more effective in controlling banks' lending facilities.

Another issue is that whether banks that are internationally oriented behave different than banks that are locally oriented. De Haas and Van Horen (2011) indicated that during the global financial crisis banks were better able to keep lending to countries in which they were well integrated into a network of domestic co-lenders during the financial crisis in Europe.

In this paper we will analyse changes in the balance sheet structure of European banks in order to pinpoint changes in their risk preferences and behaviours during the period in analysis.

The analysis will be performed based on different perspectives such as size, ownership, region and quotation in a stock exchange in order to better understand the behaviour of banks and their characteristics in dealing with their exposures.

In the following sections firstly an overview of European banking industry is introduced followed with the description of data employed in analysis. After that the behaviour of banks will be thoroughly analyzed with specific references to their risk preferences and profitability ratios. The geographical location, size, ownership and quotation at stock exchange will be the characteristics of banks to be considered while performing the analysis.

An Overview of the European Banking System

During the last decade, the European banking sector has been witness to substantial changes as a result of technological improvements, including innovative and sophisticated instruments which have led to highly leveraged market conditions, plentiful global liquidity appearing as a boom in commodity prices, deregulation and integration, globalization of financial markets with increasing activities of foreign banks, and growth of cross-border activities and a geographically widespread business volume. The creation of single financial market and the introduction of the Euro have led to converged interest rates and market structures of member countries. In competitive financial market conditions, banks have searched for ways to improve efficiency and profitability by trying to penetrate into new markets and by increasing the product range they serve, which has resulted in consolidations, mergers and acquisitions, as in other parts of the world (Asimakopoulos and Athanasoglou, 2009). According to the ECB, the number of credit institutions in EU27 decreased to 8.356 in 2009 from EU25s' 9.363 in 2001 and Euro-EU12s' 7.213 in 2001 decreased to Euro-EU16s' 6458 in the same period. The recent credit crisis followed by a debt crisis in Europe forced, also, a substantial number of compulsory merger and acquisition operations in last few years. The total value of mergers and acquisitions in the banking sector reached to its peak at €152 billion in 2008 following €140 which includes ABN Amro's €71 billion in 2007 and €99 in 2006.

In parallel to the decreasing number of banks, as a result of mergers and acquisitions, market concentration has increased (Fiordelisi, 2009). The seven biggest banking sectors, in the UK, France, Germany, Italy, Spain, Netherlands and Switzerland, constitute more than 75% of total banking sectors among EBF members. The Netherlands and Germany differ exceptionally from the others, with the Netherlands at an 85% high and Germany at a 25% low, which indicates a fragmented banking sector and concentration ratios.

The Herfindahl Index (in which greater value indicates less competition, more market power, more concentration) for credit institutions increased from 0.0506 in 2001 for EU25 to 0.0632 in 2009 for EU27; similarly, the share of total assets of the five largest credit institutions increased from 37.8% to 44.3%. But the importance of the banking sector has continued to increase in the EU; the number of branches rose from 206,265 to 229,532 and total assets increased from €24.7 trillion to €42.2 trillion during this period, in spite of losses caused by the crisis.

Despite all of the EU-specific and global incentives towards convergence and integration, the structure of the banking system and financial regulatory and supervisory framework still displays different characteristics among European countries, as each has gone through unique historical backgrounds and financial experiences. For example, the financial supervisory system of France, Italy and Spain are marked by a functional approach in which each type of business has its own functional regulator; in contrast, the UK, Germany and Switzerland have taken an integrated approach, indicating that a single universal regulator performs all regulation and supervision tasks. The jurisdictions in the Netherlands use a twin-peaks approach in which regulatory functions are separated between two regulators: one that performs the safety and soundness supervision function and the other that focuses on conduct-of-business regulation (Group of Thirty, 2008).

Data and Methodology

BankScope data of 1.123 commercial, saving and cooperative banks which have asset value
of more than $1 billion as of 2010 year end, from 27 European Union members and Turkey
are used. Total assets of analysed banks are $52.917 billion which represent about 86.57% all
banking sectors in these countries by assets and 34.04% by bank number.

Table 1: Banking Data Obtained From Bankscope

Countries	Number of Banks Being Analysed	Total Assets 2010 ($1000)	Number of Banks Analysed/Total Number of Banks %	Total Assets of Banks Analysed/Total Banks' Assets %
Austria	48	875.330.457	22,02	72,99%
Belgium	16	1.569.072.476	47,06	95,06%
Bulgaria	7	24.253.123	33,33	52,13%
Cyprus	5	91.412.884	50,00	95,42%
Czech Republic	13	189.509.507	72,22	93,62%
Denmark	13	1.120.916.360	13,27	94,92%
Estonia	1	5.779.620	16,67	17,28%
Finland	5	582.405.151	50,00	95,82%
France	109	14.868.324.377	57,37	89,32%
Germany	535	6.643.289.122	34,97	79,53%
Greece	13	600.710.470	72,22	97,48%
Hungary	8	122.719.010	47,06	93,21%
Ireland	7	710.093.825	58,33	90,78%
Italy	110	3.803.404.061	20,64	80,51%
Latvia	5	17.011.589	23,81	50,20%
Lithuania	2	16.083.069	18,18	52,85%
Luxembourg	30	549.807.665	48,39	69,76%
Malta	1	7.568.895	12,50	57,98%
Netherlands	15	2.627.397.206	57,69	81,83%
Poland	20	274.120.990	55,56	84,79%
Portugal	11	505.376.421	44,00	92,14%
Romania	9	66.053.393	37,50	71,20%

Countries	Number of Banks Being Analysed	Total Assets 2010 ($1000)	Number of Banks Analysed/Total Number of Banks %	Total Assets of Banks Analysed/Total Banks' Assets %
Slovakia	6	51.748.532	50,00	77,30%
Slovenia	10	56.107.298	55,56	81,42%
Spain	46	3.854.412.347	36,51	70,05%
Sweden	13	948.044.038	17,81	96,57%
Turkey	20	636.729.142	76,92	99,35%
United Kingdom	45	12.099.608.321	38,79	96,34%
Total	**1123**	**52.917.289.348**	**34,04**	**86,57%**

Descriptive statistics of data are provided in Table 2. The wide ranges between min and max figures profitability and leverage that cause large standard deviations are due to two factors: wide number of banks, size of banks and financial crisis. The most similarity is seen in loans/assets and consumer credits/total credits for which lowest standard deviations were calculated.

Table 2: Descriptive Statistics of Data

Ratios Analysed	Mean	Std. Dev.	Min	Max	CV
Net Interest Margin (NIM)	0,024	0,014	0,007	0,062	0,597
Return On Assets (ROA)	0,007	0,013	-0,056	0,032	1,775
Return On Equity (ROE)	0,092	0,197	-1,361	0,311	2,150
Leverage	17,572	7,067	7,042	35,741	0,402
Regulatory Capital/Risk Weighted Assets	0,119	0,272	0,061	0,224	2,286
Regulatory Tier 1 Capital/Risk-Weighted Assets	0,088	0,030	0,000	17,690	0,341
Total Loans/Assets	0,586	0,139	0,222	0,873	0,238
Consumer Credits/Total Credits	0,131	0,122	0,000	0,490	0,934
NPL/Gross Loans	0,040	0,037	0,002	0,234	0,929
Liquid Assets/Total Assets	0,208	0,083	0,087	0,517	0,398

The methodology employed in this paper is based on trend analysis and panel data analysis of banks' data for a pre-determined time period. For the purpose of analysis different tables containing trends in banks' balance sheet structures are prepared as using raw data from Bankscope to identify different behaviour of European Banks towards risk taking activities and profitability in line with the perspectives mentioned earlier.

Analysis of Profitability

As can be seen from the below Table 3, the average Net Interest Margin (NIM) of European
Banks is slightly up from 12% in 2006 to 14% in 2010. Considering that NIM is the
difference between weighted average return on earning assets and weighted average cost of
liabilities, it is important to note that banks managed to increase it during the financial crisis.
However we see this as an illusion due to the accounting rules and standards that help banks
to isolate their NIM figures from the effects of provisions for impaired assets1.

The effect of provision for bad assets is witnessed in the figures of Return on Assets
(ROA) and Return on Equities (ROE) shown in Table 4 and Table 5 respectively. As can be
seen from these two tables, the ROA and ROE ratios are sharply down in the years of
financial crisis mainly due to the sharp increases in provisions for non-performing assets.

The slightly up NIM figures during the financial crisis imply that banks tend to continue
their businesses in line with their past experiences and preferences. They continue to focus on
protecting the difference between their lending and borrowing rates for the sake of
profitability and running their businesses as usual. This management behaviour seems to be
un-sensitive to financial crisis. It is likely that on average European banks' approach to their
customers did not change that they preferred to make a classification between their customers
based on their measured riskiness and kept the pre crisis relationship with those customers
considered less risky than others.

1In this paper we avoid using "non-performing loans" instead we prefer to use a phrase; "non-
performing assets" that is wide enough to include any type of lending in the forms of loans,
bonds, etc.

Table 3: Net Interest Margin

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
1103	EU 27	0,012	0,012	0,013	0,013	0,014	0,013
1021	EU 16	0,012	0,011	0,012	0,013	0,014	0,012
82	EU ENLARGED 11	0,034	0,035	0,036	0,034	0,036	0,035
968	EU AREA 17	0,012	0,012	0,013	0,014	0,015	0,013
135	NON-EURO AREA 10	0,012	0,012	0,011	0,010	0,012	0,011
37	State	0,015	0,015	0,014	0,013	0,013	0,014
1086	Non-State	0,012	0,012	0,013	0,014	0,014	0,013
109	Listed	0,013	0,013	0,015	0,016	0,016	0,014
1014	Unlisted	0,012	0,011	0,012	0,012	0,013	0,012
1002	Main Country	0,014	0,014	0,015	0,015	0,016	0,015
121	Main+ Foreign Country	0,011	0,010	0,011	0,012	0,013	0,012
27	XXL	0,010	0,009	0,011	0,012	0,013	0,011
18	XL	0,008	0,009	0,009	0,010	0,010	0,009
23	L	0,017	0,017	0,019	0,017	0,016	0,017
100	M	0,021	0,022	0,022	0,022	0,021	0,022
154	S	0,022	0,022	0,022	0,021	0,021	0,021
801	XS	0,024	0,023	0,023	0,023	0,024	0,023
31	Scandinavian	0,011	0,010	0,011	0,012	0,010	0,011
81	Former Eastern Europe	0,034	0,035	0,036	0,034	0,036	0,035
195	Mediterranean	0,022	0,024	0,025	0,025	0,024	0,024
720	Western European Countries	0,010	0,009	0,010	0,011	0,012	0,010
20	Turkey	0,059	0,062	0,051	0,060	0,048	0,056
1123	**Average**	**0,012**	**0,012**	**0,013**	**0,014**	**0,014**	**0,013**

The results of panel data analysis are in line with the findings of trend analysis and are provided in appendix 2

Having noted that NIM figures of European Banks are slightly up during the global financial crisis, NIM figures of European banks can be analyzed further from different perspectives. Banks of EU Enlarged 11 countries seem perform best in terms NIM management with NIM figures 2.7 times higher than other banks. From the ownership point of view NIM figures are very close to each other. However, at the beginning of crisis state banks had slightly higher NIM figures which eroded to the level of private banks. That is probably due to the fact that state banks tend to cooperate with their states in combating the crisis as shrinking down their profitability figures.

On the other hand listed banks' NIM figures are slightly higher than those of unlisted banks. Listed banks managed to increase their NIM figures during the crisis faster than unlisted banks. That could be related to the so called market discipline imposed on listed banks. Most importantly scale does matter in achieving NIM figures with XS banks having highest and XL banks together with XXL banks having lowest NIM ratios. This could well be a result of small banks getting specialized in specific areas of lending or concentrating on specific customers as providing them with better and faster services that help them to bust their profitability.

Geographically Former Eastern European Banks have the highest NIM figures followed by banks of Mediterranean Countries. The lowest figures are of Western European countries and Scandinavian Countries. The Euro Zone banks seem to perform slightly better than banks outside of the Euro Zone. Although Turkey's NIM figures went down from 5.9% in 2006 to 4.8%in 2010, it still keeps an average NIM figure 4.3 times higher than the average of all banks in analysis.

The main source of NIM is the difference between lending and borrowing rates that is shaped by the competition in the market, demand for loans and deposits and the other market characteristics. The successful management can only protect this figure from bad effects of risks. It seems that this margin is very narrow in Western European Countries and much wider in Former Eastern European Countries and in Turkey, as suggesting that higher NIM figures in these countries are not necessarily a management's success but rather a market characteristic.

Table 4: Return on Assets

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
1103	EU 27	0,006	0,006	0,001	0,001	0,002	0,003
1021	EU 16	0,006	0,006	0,001	0,001	0,002	0,003
82	EU ENLARGED 11	0,017	0,018	0,015	0,007	0,009	0,013
968	EU AREA 17	0,006	0,006	0,001	0,001	0,002	0,004
135	NON-EURO AREA 10	0,006	0,006	0,001	0,001	0,001	0,003
37	State	0,009	0,008	-0,006	-0,003	-0,009	0,000
1086	Non-State	0,006	0,006	0,002	0,002	0,003	0,004
109	Listed	0,007	0,007	0,003	0,003	0,003	0,005
1014	Unlisted	0,006	0,006	0,000	0,001	0,002	0,003
1002	Main Country	0,007	0,006	0,002	0,001	0,002	0,004
121	Main+ Foreign Country	0,006	0,006	0,001	0,002	0,003	0,004
27	XXL	0,006	0,005	0,001	0,002	0,003	0,003
18	XL	0,006	0,006	-0,002	0,000	0,004	0,003
23	L	0,009	0,008	0,004	0,001	-0,001	0,004
100	M	0,010	0,010	0,006	0,000	-0,001	0,005
154	S	0,009	0,009	0,006	0,005	0,005	0,007
801	XS	0,005	0,005	0,003	0,002	0,005	0,004
31	Scandinavian	0,007	0,007	0,003	0,001	0,003	0,004
81	Former Eastern Europe	0,017	0,018	0,015	0,007	0,009	0,013
195	Mediterranean	0,010	0,012	0,007	0,006	0,006	0,008
720	Western European Countries	0,005	0,005	0,000	0,001	0,002	0,003
20	Turkey	0,026	0,032	0,020	0,025	0,024	0,025
1123	**Average**	**0,006**	**0,006**	**0,001**	**0,001**	**0,002**	**0,004**

As can be seen from Table 4, all European Banks' ROA ratios went down sharply due to the sky-rocketed non-performing assets. State banks seem to be affected worst. Unlisted banks seem to be affected worse than listed banks; this may well be due to the market control on listed banks.

As it was the case in NIM Scale effect is witnessed here as well. Banks of small sizes seem to get affected by the financial crisis less than banks of medium or larger sizes. This may well be as a result of being smaller could have allowed small banks to have a better control over their balance sheets through knowing their customers and/or borrowers better. Flexibility in shifting their assets and liabilities could be another explanation that needs further research.

Geographically EU Enlarged 11 banks seem to perform much better than banks of all other classes. Banks of Western European countries are worst followed by banks of Scandinavian and Mediterranean countries. Banks operating in Turkey have ROA figures 6.25 times greater than the average ROA of all banks in analysis. This is thought to be a success achieved for a set of reforms implemented in Turkey after the crisis in 2001.

Table 5: Return on Equity

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
1103	EU 27	0,150	0,141	0,033	0,031	0,046	0,080
1021	EU 16	0,149	0,139	0,028	0,030	0,045	0,078
82	EU ENLARGED 11	0,192	0,211	0,178	0,076	0,090	0,149
968	EU AREA 17	0,144	0,131	0,035	0,033	0,053	0,079
135	NON-EURO AREA 10	0,171	0,175	0,026	0,025	0,029	0,085
37	State	0,197	0,168	-0,135	-0,064	-0,162	0,001
1086	Non-State	0,146	0,141	0,057	0,047	0,075	0,093
109	Listed	0,169	0,160	0,077	0,061	0,072	0,108
1014	Unlisted	0,140	0,133	0,009	0,018	0,037	0,067
1002	Main Country	0,141	0,133	0,039	0,015	0,040	0,074
121	Main+ Foreign Country	0,163	0,155	0,033	0,058	0,063	0,094
27	XXL	0,161	0,146	0,032	0,049	0,064	0,091
18	XL	0,167	0,176	-0,062	0,007	0,089	0,075
23	L	0,181	0,152	0,089	0,029	-0,018	0,087
100	M	0,146	0,155	0,087	0,004	-0,015	0,075
154	S	0,114	0,112	0,081	0,064	0,065	0,087
801	XS	0,072	0,074	0,044	0,023	0,070	0,057
31	Scandinavian	0,153	0,155	0,074	0,022	0,072	0,095
81	Former Eastern Europe	0,191	0,211	0,178	0,075	0,090	0,149

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
195	Mediterranean	0,153	0,167	0,110	0,090	0,080	0,120
720	Western European Countries	0,143	0,129	-0,009	0,030	0,062	0,071
20	Turkey	0,227	0,281	0,187	0,226	0,202	0,225
1123	**Average**	**0,151**	**0,144**	**0,036**	**0,036**	**0,051**	**0,084**

ROE figures given in Table 5 indicate sharp decreases for all types of banks except for banks of small sizes whose figures are down moderately. In ROE analysis scale does matter again in achieving and/or protecting high profitability figures. Ratios suggest the larger banks are the sharper their figures fallen during the financial crisis. This has some suggestions for regulators that similar to the famous saying "too big to fail" it is also relevant to say that "too big to be managed or controlled". Similar to ROA ratios, listed banks performed better than unlisted banks during the financial crisis. Again this suggests that being quoted on a stock exchange market generates a market control on banks in terms of profitability management.

Scale seems very crucial here again. Unlike their great performances in NIM and ROA analysis, small banks performed worse than larger banks due to their preferences regarding leverage multiplier. Larger banks geared up their low profitability ratios with the help of much larger leverage multipliers. However this makes larger banks very much vulnerable to bankruptcy risk. From the ownership point of view state banks seem to perform worse than private banks, again due to relatively much higher ratio of provisions for non-performing assets. However, it is important to note that state banks are very strict to set aside provision for loan losses whereas private banks tend to exhaust all possible ways of collecting loans before provisioning their bad assets. On geographical basis, Former Eastern European Banks performed much better than Euro Zone Banks, Western European Countries Banks and Scandinavian Banks. Turkey again by far outperformed all banks with its average ROE ratio being 2.7 times higher than all banks average.

Table 6: Leverage (Total Assets/Shareholders' Equity)

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
1103	EU 27	23,612	23,489	25,331	24,597	21,950	23,796
1021	EU 16	23,953	23,836	25,761	25,041	22,344	24,187
82	EU ENLARGED 11	11,407	11,739	12,019	11,467	10,406	11,408
968	EU AREA 17	22,793	22,443	23,820	23,086	21,251	22,679
135	NON-EURO AREA 10	26,334	27,117	31,066	29,755	23,963	27,647
37	State	21,712	21,075	21,917	22,830	19,003	21,308
1086	Non-State	23,601	23,461	25,360	24,374	21,864	23,732
109	Listed	23,117	22,972	24,467	23,387	21,554	23,099
1014	Unlisted	23,582	23,355	25,352	24,810	21,582	23,736
1002	Main Country	20,955	20,545	22,041	21,754	19,850	21,029
121	Main+ Foreign Country	26,122	26,166	28,269	26,816	23,407	26,156
27	XXL	27,204	27,743	31,041	29,330	25,268	28,117
18	XL	29,826	27,298	27,580	28,144	25,298	27,629
23	L	19,355	19,114	19,939	19,891	19,786	19,617
100	M	15,314	14,964	15,624	15,254	13,973	15,026
154	S	12,489	12,546	13,785	13,859	12,925	13,121
801	XS	15,109	14,676	14,716	14,368	13,591	14,492
31	Scandinavian	21,133	21,703	23,570	23,686	22,806	22,580
81	Former Eastern Europe	11,388	11,707	11,981	11,433	10,370	11,376
195	Mediterranean	14,749	14,469	14,804	14,588	13,993	14,520
720	Western European Countries	27,627	27,608	30,843	29,740	25,658	28,295
20	Turkey	8,725	8,887	9,411	8,988	8,418	8,886
1123	**Average**	**23,399**	**23,203**	**24,990**	**24,218**	**21,571**	**23,476**

The leverage of all classes of banks remained almost constant over the period in analysis. This
means that the global financial crisis did not change the leverage of banks in Europe.
However, large banks keep much higher leverage multipliers (LM) relative to small banks.
This in turn gear up their ROE ratios. The average LM of European banks is about 23X,
implying that they only finance 4,35% of their assets with their shareholders' funds. On
average XS banks finance 8% and XXL banks finance 3.6% of their assets with their

shareholders' funds. That makes large banks much riskier than small banks. Interestingly no bank seems to have reduced its leverage during the period in analysis which contain the years of global financial crisis. State banks tend to keep slightly low LMs and there is no difference between the preferences of listed and unlisted banks with regard to their LM levels. Due to their relatively low ROA figures banks from Western European countries keep very high LMs in order to gear up their ROE ratios that in turn increase their riskiness and vulnerability. The lowest LMs are of banks operating in Turkey followed by Former Eastern European Banks.

Analysis of Capital Adequacy

Analysis of capital adequacy (CA) is rather tricky. Unlike LM which is calculated as using balance sheet figures of assets and shareholders' funds, for the calculation of CA ratios based on the Basel Committee criteria regulatory capital is used which is much different than shareholders' funds and risk weighted assets are used that are also much different than total assets that banks own.

Table 7: Total Regulatory Capital/Risk Weighted Assets

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
1103	EU 27	9,106	9,340	10,105	12,025	12,305	10,576
1021	EU 16	9,072	9,315	10,097	12,005	12,277	10,553
82	EU ENLARGED 11	11,586	10,995	10,640	13,262	14,056	12,108
968	EU AREA 17	9,830	9,492	10,386	12,016	12,289	10,803
135	NON-EURO AREA 10	7,045	8,922	9,397	12,050	12,345	9,952
37	State	6,045	10,855	12,955	14,320	13,874	11,610
1086	Non-State	9,569	9,249	9,849	11,866	12,220	10,551
109	Listed	10,599	10,335	11,162	12,773	13,209	11,616
1014	Unlisted	8,332	8,819	9,507	11,633	11,788	10,016
1002	Main Country	8,986	9,000	10,102	11,503	12,000	10,318
121	Main+ Foreign Country	9,415	9,772	10,198	12,619	12,708	10,942
27	XXL	8,969	9,314	10,026	12,191	12,797	10,659
18	XL	11,527	11,638	12,658	14,626	14,177	12,925
23	L	10,700	9,993	10,528	11,821	11,792	10,967
100	M	10,371	9,545	9,834	11,238	10,694	10,336
154	S	5,122	5,451	6,007	7,580	7,860	6,404
801	XS	4,120	5,944	8,393	10,129	10,212	7,760

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
31	Scandinavian	11,477	10,706	11,274	13,780	13,473	12,142
81	Former Eastern Europe	11,592	11,001	10,637	13,296	14,092	12,124
195	Mediterranean	10,458	10,999	11,344	12,602	12,610	11,603
720	Western European Countries	8,700	8,985	9,857	11,921	12,314	10,355
20	Turkey	22,449	17,430	16,115	18,798	17,381	18,435
1123	**Average**	**9,213**	**9,460**	**10,423**	**12,624**	**12,756**	**10,895**

Calculated figures in Table 7 indicate that all banks' average CA ratio went up remarkably with greatest increases in state banks' and XS banks' figures. A similar behaviour is witnessed in Table 8 that contain Tier 1 capital of banks divided by their risk weighted assets. However, remembering that the LM figures of banks almost remained unchanged, it can be concluded that these increases were not achieved by the injection of new and fresh capital. The changes in the structures of balance sheets seem to have made great contributions to the increases witnessed in the CA ratios of European banks.

Despite the fact that the CA figures of small banks increased during the period in analysis, the ratios indicate that small banks are the most poorly capitalised banks in contrast to the other banks of larger sizes. Similar improvements are witnessed for the CA ratios of all the other banks nonetheless they are still less capitalised in comparison to banks operating in Turkey2 which have an average CA ratio of 18.4% during the period in analysis.

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2 Turkish banks' CA went up remarkably after the reforms implemented in 2001 and thereafter.

Table 8: Regulatory Tier 1 Capital/ Risk Weighted Assets

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
1103	EU 27	6,547	7,024	7,612	9,326	9,770	8,056
1021	EU 16	6,533	7,011	7,596	9,314	9,753	8,041
82	EU ENLARGED 11	7,585	7,854	8,670	10,027	10,794	8,986
968	EU AREA 17	7,265	7,426	8,081	9,440	9,822	8,407
135	NON-EURO AREA 10	7,299	6,767	6,993	8,558	7,866	7,497
37	State	3,879	7,636	9,180	10,550	10,653	8,379
1086	Non-State	6,904	7,012	7,507	9,281	9,754	8,092
109	Listed	7,541	7,589	8,403	10,100	10,639	8,854
1014	Unlisted	5,999	6,744	7,201	8,923	9,282	7,630
1002	Main Country	6,535	6,656	7,690	8,958	9,573	7,882
121	Main+ Foreign Country	6,655	7,440	7,656	9,791	10,077	8,324
27	XXL	6,371	6,934	7,660	9,703	10,361	8,206
18	XL	8,522	9,330	9,248	11,283	11,423	9,961
23	L	7,911	7,625	8,266	9,267	9,338	8,481
100	M	7,154	7,076	8,077	9,248	9,005	8,112
154	S	3,799	4,269	4,851	5,611	5,915	4,889
801	XS	2,743	3,320	4,101	4,315	4,653	3,826
31	Scandinavian	9,732	8,983	9,263	11,874	12,156	10,402
81	Former Eastern Europe	8,206	7,921	9,293	10,879	11,624	9,584
195	Mediterranean	7,164	8,019	8,784	9,949	10,299	8,843
720	Western European Countries	5,665	6,468	7,227	8,804	9,306	7,494
20	Turkey	13,008	12,781	14,818	16,584	15,084	14,455
1123	**Average**	**6,598**	**7,110**	**7,911**	**9,799**	**10,058**	**8,295**

However these CA ratios are deceptive since they do not measure the accounting based capital/asset ratio of banks. Thus a bank that has accounting capital/asset ratio of say 1% could have even larger than say 10% CA ratio based on Basel Committee Criteria. This is exactly the case here as well. The accounting based CA ratios of small banks are much greater

than those of larger banks, however the CA ratios of small banks seem much smaller than that of larger banks calculated based on Basel Committee criteria3.

Analysis of Credit Risk

Figures in Table 9 state that the global financial crisis did not affect the preferences of banks in terms of allocating their sources between credits and other assets. However the size of banks does affect their preferences with this respect. As banks get smaller the share of advances on their balance sheets get greater. This allows banks of smaller sizes to have diversified portfolios of assets in comparison with large banks that heavily invest in bonds of different states and large corporations. However since the risk weight of bonds is smaller than risk weight of private loans, investing in bonds allow large banks to operate with much higher leverage multipliers.

Table 9: Total Loans/Total Assets

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
1103	EU 27	0,446	0,446	0,446	0,460	0,470	0,454
1021	EU 16	0,445	0,444	0,443	0,457	0,467	0,451
82	EU ENLARGED 11	0,543	0,589	0,636	0,660	0,669	0,619
968	EU AREA 17	0,436	0,440	0,450	0,475	0,478	0,456
135	NON-EURO AREA 10	0,475	0,465	0,434	0,422	0,449	0,449
37	State	0,566	0,553	0,513	0,489	0,490	0,522
1086	Non-State	0,433	0,435	0,440	0,458	0,469	0,447
109	Listed	0,407	0,417	0,426	0,453	0,454	0,431
1014	Unlisted	0,472	0,466	0,460	0,466	0,482	0,469
1002	Main Country	0,476	0,486	0,498	0,517	0,528	0,501
121	Main+ Foreign Country	0,420	0,413	0,402	0,413	0,418	0,413
27	XXL	0,387	0,385	0,379	0,393	0,410	0,391
18	XL	0,457	0,450	0,451	0,485	0,477	0,464
23	L	0,588	0,617	0,647	0,653	0,635	0,628
100	M	0,600	0,608	0,622	0,627	0,624	0,616

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3 The new Basel III Criteria is expected to include an accounting based leverage to over5come this shortcoming of risk based capital adequacy criteria.

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
154	S	0,581	0,591	0,597	0,605	0,618	0,598
801	XS	0,586	0,592	0,599	0,599	0,604	0,596
31	Scandinavian	0,594	0,605	0,602	0,603	0,583	0,598
81	Former Eastern Europe	0,542	0,589	0,636	0,661	0,670	0,620
195	Mediterranean	0,609	0,632	0,650	0,657	0,648	0,639
720	Western European Countries	0,398	0,390	0,382	0,397	0,412	0,396
20	Turkey	0,476	0,536	0,535	0,520	0,530	0,519
1123	Average	**0,447**	**0,447**	**0,447**	**0,461**	**0,471**	**0,454**

On the other hand state banks tend to lend credits significantly more than private banks. However, during the crisis, unlike private banks which increased their loan ratio, state banks reduced the share of credits on their balance sheets. This might also be a result of removing all bad loans from their balance sheets after proper provisioning.

Sharpest increases were witnessed in the figures of Former Eastern European Banks followed by increases in the figures of Turkish Banks. The least average ratio is 39.6% and it is belong to banks of Western European countries which mainly invest in the state bonds of countries worldwide.

As can be seen from the below Table 11, there is a sharp decline in the average figure of consumer credits/total credits for European Banks during the period 2006-2010. L, XL and XXL banks' figures are the worst effected figures. Figures belonging to banks of smaller sizes remained constant during the period in analysis. L banks had a figure of 22.5% in 2006 that went down to 3.2% in 2010 underline a great asset shift from consumer credits to other types of assets, probably government bonds. Unlike the fallen figures of non-state banks, the increase noted in the figures of State banks in 2010 is considered as a support for the recovery of economies from the possible recessions. Despite the 4.1% average figure of Western European countries, the average figure of Former Eastern European Banks is 20.9%.

Table 11: Consumer Credits/Total Credits

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
1103	EU 27	0,110	0,082	0,056	0,066	0,071	0,077
1021	EU 16	0,109	0,079	0,053	0,062	0,067	0,074
82	EU ENLARGED 11	0,161	0,209	0,209	0,221	0,237	0,207
968	EU AREA 17	0,107	0,085	0,050	0,059	0,068	0,074
135	NON-EURO AREA 10	0,119	0,072	0,074	0,086	0,077	0,086
37	State	0,136	0,086	0,030	0,028	0,105	0,077
1086	Non-State	0,107	0,082	0,061	0,071	0,069	0,078
109	Listed	0,167	0,129	0,094	0,114	0,115	0,124
1014	Unlisted	0,079	0,056	0,035	0,036	0,045	0,050
1002	Main Country	0,068	0,058	0,036	0,051	0,053	0,053
121	Main+ Foreign Country	0,154	0,108	0,082	0,084	0,096	0,105
27	XXL	0,097	0,076	0,054	0,070	0,070	0,073
18	XL	0,145	0,135	0,057	0,055	0,103	0,099
23	L	0,225	0,069	0,037	0,036	0,032	0,080
100	M	0,094	0,084	0,079	0,087	0,082	0,085
154	S	0,103	0,099	0,120	0,125	0,127	0,115
801	XS	0,015	0,019	0,020	0,022	0,021	0,019
31	Scandinavian	0,156	0,109	0,109	0,123	0,097	0,119
81	Former Eastern Europe	0,162	0,210	0,211	0,223	0,239	0,209
195	Mediterranean	0,194	0,173	0,108	0,142	0,142	0,152
720	Western European Countries	0,065	0,045	0,028	0,029	0,041	0,041
20	Turkey	0,181	0,199	0,191	0,183	0,183	0,188
1123	Average	**0,111**	**0,083**	**0,058**	**0,067**	**0,072**	**0,078**

This could be due to several reasons. Firstly the residents in Western European Countries could have higher saving ratios that reduce their demand for consumer loans. Secondly, residents in these countries could be over indebted that banks prefer to withdraw their funds from that area. Thirdly, banks in these countries could have sold their consumer loans to investors, as removing them from their balance sheets, in order to generate funds to finance their lending to countries in trouble.

The effects of global financial crisis have been severe on European banks in terms of provisioning for bad loans that are given in below Table 12. Large banks were hit worse than small banks and state banks were punished worse than private banks. It looks like a paradox that the small banks with highest ratio of loans to assets are the banks with the lowest ratio of non-performing loans to total loans. It is expected that banks with highest exposure to credit risk must get hurt worse than banks with lower exposure. However this is not valid for European Banks at least during the period in analysis.

Table 12: Non-Performing Loans/Total Loans

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
1103	EU 27	0,018	0,019	0,026	0,044	0,048	0,031
1021	EU 16	0,017	0,019	0,026	0,043	0,047	0,030
82	EU ENLARGED 11	0,039	0,032	0,037	0,074	0,089	0,054
968	EU AREA 17	0,020	0,021	0,027	0,041	0,046	0,031
135	NON-EURO AREA 10	0,012	0,015	0,024	0,050	0,053	0,031
37	State	0,016	0,014	0,026	0,063	0,086	0,041
1086	Non-State	0,018	0,020	0,026	0,042	0,044	0,030
109	Listed	0,021	0,026	0,032	0,051	0,055	0,037
1014	Unlisted	0,016	0,016	0,023	0,039	0,043	0,027
1002	Main Country	0,017	0,019	0,025	0,042	0,045	0,029
121	Main+ Foreign Country	0,019	0,021	0,027	0,045	0,052	0,033
27	XXL	0,017	0,022	0,029	0,047	0,049	0,033
18	XL	0,021	0,017	0,024	0,037	0,040	0,028
23	L	0,016	0,015	0,023	0,038	0,050	0,028
100	M	0,023	0,021	0,028	0,054	0,066	0,038
154	S	0,016	0,016	0,022	0,035	0,038	0,025
801	XS	0,007	0,008	0,012	0,021	0,023	0,014
31	Scandinavian	0,005	0,005	0,011	0,025	0,026	0,014
81	Former Eastern Europe	0,039	0,032	0,037	0,074	0,089	0,054
195	Mediterranean	0,025	0,030	0,039	0,058	0,064	0,043
720	Western European Countries	0,017	0,018	0,023	0,038	0,040	0,027
20	Turkey	0,035	0,032	0,034	0,051	0,035	0,037
1123	Average	**0,018**	**0,020**	**0,026**	**0,044**	**0,048**	**0,031**

S and XS banks' success could be due to two reasons. The first is that they might be
managing their credit portfolio much better than larger banks. The second is that because they
keep little government bonds and because the crisis hit government securities worse than
private loans, S and XS banks were just lucky. Listed Banks' average figure is larger than that
of Unlisted Banks' ratio. Again, due to the market discipline listed banks might be reacting
faster than unlisted banks in provisioning their bad assets. Geographically Former Eastern
European banks, banks of Mediterranean Countries and Turkish Banks were the banks having
highest NPL to Total Loans.

Analysis of Liquidity Risk

Before the global financial crisis European banks' average liquid assets/total assets ratio was
30% that went down to 24% after the crisis. As can be seen from Table 12, this downturn
trend was witnessed for all types of banks. S and XS banks kept lower ratios than larger banks
during the period in analysis. Usually small banks rely on stored liquidity and thus they invest
in liquid assets more than larger banks which rely on purchased liquidity. However, contrary
to the general thoughts, S and XS banks' liquidity ratio was lower than large banks' ratios
before, during and after the crisis. During the same period state banks' liquidity ratios were
lower than those of private banks, in line with the general thought.

Table 12: Liquid Assets/Total Assets

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
1103	EU 27	0,301	0,290	0,247	0,237	0,238	0,263
1021	EU 16	0,302	0,291	0,248	0,239	0,239	0,264
82	EU ENLARGED 11	0,247	0,209	0,169	0,155	0,142	0,184
968	EU AREA 17	0,298	0,290	0,230	0,226	0,226	0,254
135	NON-EURO AREA 10	0,308	0,289	0,290	0,267	0,266	0,284
37	State	0,221	0,218	0,129	0,166	0,186	0,184
1086	Non-State	0,309	0,296	0,259	0,243	0,241	0,270
109	Listed	0,325	0,308	0,248	0,249	0,248	0,276
1014	Unlisted	0,283	0,276	0,245	0,227	0,228	0,252
1002	Main Country	0,275	0,250	0,197	0,222	0,207	0,230
121	Main+ Foreign Country	0,322	0,322	0,287	0,249	0,263	0,289
27	XXL	0,344	0,317	0,271	0,257	0,260	0,289
18	XL	0,279	0,308	0,221	0,245	0,254	0,261
23	L	0,199	0,189	0,160	0,165	0,156	0,174

Number of Banks	Categories	2006	2007	2008	2009	2010	Average
100	M	0,202	0,202	0,195	0,185	0,162	0,189
154	S	0,231	0,233	0,237	0,216	0,200	0,223
801	XS	0,192	0,198	0,193	0,167	0,163	0,183
31	Scandinavian	0,249	0,241	0,189	0,215	0,203	0,219
81	Former Eastern Europe	0,247	0,208	0,168	0,154	0,141	0,184
195	Mediterranean	0,202	0,183	0,153	0,150	0,136	0,165
720	Western European Countries	0,328	0,318	0,272	0,261	0,265	0,289
20	Turkey	0,157	0,144	0,141	0,127	0,099	0,134
1123	**Average**	**0,300**	**0,288**	**0,246**	**0,236**	**0,236**	**0,261**

Remembering the negative relationship between liquidity and profitability, the low liquidity ratios of S and XS banks make sense that they have had much higher profitability ratios than larger banks. On the other hand, all banks might have thought that the reduction witnessed in their profitability ratios could be compensated, at least partly, by reducing the level of liquid assets and investing in the assets of longer maturities with higher expected returns.

The least ratio is the one belong to the Turkish banks with an average of 13.4% and the highest average ratio of 28.9% is belong banks of Western European Countries.

Conclusion

The global financial crisis ignited at the end of 2007 has had severe effects on European banks. In this manuscript the effects of crisis on European banks are analysed by spotting changes in the balance sheet structures of banks with specific references to profitability, capital adequacy, loan structure and liquidity ratios during the period 2006-2010. One of the main targets of this research has been to analyze the behaviour of different banks in combating the financial crisis. For this purpose banks were divided into several groups based on ownership, scale and type of banks; geographical location and listing on a stock exchange; in order to differentiate the reaction of each group of banks to financial crisis.

It is observed that NIM of all banks remained unchanged during the period analysed. Nonetheless the NIM figures of different bank groups considerably varied. 2.7 times higher NIM figures of Banks of EU Enlarged 11 countries indicate a strong geographical effect on NIM. The scale effect is considerably apparent that NIM figures of XS banks were twice higher than that of XL and XXL banks.

However, in contrast to the constant NIM figures ROA and ROE ratios went down sharply mainly due to the sky-rocketed non-performing assets. The severe effects on state banks and unlisted banks are considered as signs for the ownership and market discipline. Scale effect is observed again as banks of small sizes got affected by the financial crisis less than banks of medium or larger sizes. The effects of crisis on banks differ geographically as well.

Similar to NIM the LM of all bank groups remained almost constant over the period in analysis. Nonetheless this figure differs based on the characteristics of banks analyzed in this

manuscript. Higher LM of large banks in comparison to small banks suggest a scale effect and higher LM of EU 16 in comparison to EU Enlarged 11 suggest a geographical effect too.

The average CA ratio of all banks went up remarkably with greatest increases in state banks' and XS banks' figures. In contrast to the constant LM figures of banks, increases in CA ratios are related to changes in the structures of balance sheets and definition of CA based on Basel Criteria. In analyzing the credit structure of European banks, scale effect is obvious that the smaller banks are the greater the share of loans on their balance sheets. Significantly higher loan/asset ratio of state banks in comparison to that of private banks indicates an ownership effect. Significant geographical variations were also observed in developments regarding loan/asset ratios. The behaviour of listed and unlisted banks differs under this heading too.

Diversity is observed in the reaction of different groups of banks with regard to liquidity management during the period in analysis. Scale, ownership and geographical effects are relevant under this heading.

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Appendix 1: Definition of Ratios Used in Analysis

1	NIM	Net Interest Income / Average Earning Assets
2	ROA	Net Income/Average Assets
3	ROE	Net Income/Average Equity
4	Leverage	Average Assets / Average Equity
5	Regulatory Capital to Risk-Weighted Assets	Taken Directly From Bankscope
6	Regulatory Tier 1 Capital to Risk-Weighted Assets	Taken Directly From Bankscope
7	Total Loans/Assets	Average Loans / Average Assets
8	Consumer Credit / Total Credit	Consumer Credit/Total Credit
9	NPL to Gross Loans	Non-Performing Loans/Gross Loans
10	Liquid Assets / Total Assets	Liquid Assets/Total Assets

Appendix 2: Classification of Banks

Category	Number of banks	Criteria ($ Billion)
XXL	27	>500
XL	18	250 – 500
L	23	100 – 250
M	100	25 – 100
S	154	10 – 25
XS	801	1 – 10
Commercial Banks	408	Banks mainly active in commercial activities and deposits
Saving Banks	388	Banks mainly active in long term borrowing and lending
Cooperative Banks	327	Banks mainly active in home loan businesses
Private Banks	1086	Banks owned by private entities
State Banks	37	Banks owned and operated by their states
Listed Banks	109	Banks whose shares are traded on stock exchanges

Unlisted Banks	1014	Banks that are not listed on stock exchanges
EU 27	1103	All European Union Banks
EU 16	1021	EU members in 2002
EU ENLARGED 11	82	Countries Joined EU after 2002
EU AREA 17	968	Euro zone Area Countries
NON-EURO AREA 10	135	Countries Not in the Euro zone
State	37	Banks owned by the state
Non-State	1086	Private banks
Main Country	1002	Banks Operating Only in their Host Country
Main+ Foreign Country	121	Banks Operating in their Host Country and Abroad
Scandinavian	31	
Former Eastern Europe	81	
Mediterranean	195	
Western European Countries	720	

Appendix 3: Panel Data Analysis Results

COUNTRIES	NIM	ROA	ROE	LEVERAGE X	REGULATORY CAPITAL / RISK-WEIGHTED ASSETS %	REGULATORY TIER 1 CAPITAL TO RISK-WEIGHT ASSETS %	Total Loans / Total Assets %	CONSUMER CREDİT / TOTAL CREDIT %	NPL / TOTAL GROSS LOANS	LIQUID ASSETS / TOTAL ASSETS %
Austria	-3,65	1,06	-0,30	-6,25	-1,73	-0,59	-0,03	-1,74	-0,14	-7,41
Belgium	-7,86	9,58	-1,07	-5,72	2,88	-1,22	-1,14	-5,35	-0,02	-6,33
Bulgaria	0,31	-2,84	2,80	18,12	0,84	0,01	9,10	5,14	1,09	10,73
Cyprus	-6,47	3,93	-0,04	-1,96	-0,42	2,62	2,53	0,39	0,32	9,46
Czech Republic	-7,89	17,74	0,56	10,18	1,57	-0,53	-2,37	-2,26	0,97	19,50
Denmark	20,08	-8,14	-1,38	-10,55	0,70	-2,33	-3,79	2,77	-0,66	-12,08
Estonia	1,97	-26,25	-0,64	-7,19	2,46	-2,21	6,42	6,57	-0,73	-18,64
Finland	7,05	14,77	-1,21	-3,72	4,60	-2,72	-8,62	-1,58	0,52	-13,61

COUNTRIES	NIM	ROA	ROE	LEVERAGE X	REGULATORY CAPITAL / RISK-WEIGHTED ASSETS %	REGULATORY TIER 1 CAPITAL TO RISK-WEIGHT ASSETS %	Total Loans / Total Assets %	CONSUMER CREDİT / TOTAL CREDIT %	NPL / TOTAL GROSS LOANS	LIQUID ASSETS / TOTAL ASSETS %
France	24,15	23,53	-1,24	-8,51	0,41	-0,84	-11,61	1,32	0,51	-10,70
Germany	-4,72	22,09	-0,98	-11,33	0,21	-1,36	-7,15	-9,09	0,42	3,07
Greece	-7,72	-8,61	0,67	0,72	0,28	2,76	5,13	-1,95	-0,43	5,55
Hungary	-8,13	-9,14	1,90	14,29	-1,13	2,84	4,84	-2,20	0,03	-1,08
Ireland	-2,29	45,94	-0,99	0,03	-0,46	1,58	-5,27	-2,76	-2,13	-4,68
Italy	5,02	-6,79	-0,29	-13,32	-1,46	1,71	-0,96	-0,32	-0,34	6,58
Latvia	5,10	38,36	-0,02	-6,60	-1,24	5,17	2,95	5,61	-2,23	-9,77
Lithuania	-0,56	28,91	-0,30	5,49	-1,54	2,37	0,52	4,99	-1,46	-16,66
Luxembourg	4,50	39,64	-1,16	-7,45	0,55	-2,77	-7,29	9,96	1,18	-17,87
Malta	0,64	9,45	0,23	-13,16	-8,91	-0,70	-0,77	6,38	0,47	24,94
Netherlands	-6,19	1,79	-1,35	-7,84	2,42	-2,18	0,40	-4,52	-0,32	2,71
Poland	-8,61	4,36	0,93	3,07	0,32	1,36	-0,12	-1,98	0,82	13,25
Portugal	-3,37	-9,26	-0,71	0,18	-1,80	-2,22	0,67	-1,88	-0,52	0,13
Romania	6,41	4,27	3,37	28,30	0,56	2,22	25,74	9,66	0,86	0,16
Slovakia	-11,97	11,76	0,97	0,44	0,52	0,69	2,11	-4,49	0,63	18,70
Slovenia	-6,44	-16,18	0,00	-6,10	-3,57	1,60	4,42	-2,32	-0,78	2,02
Spain	-2,01	-1,40	-0,38	17,33	-0,68	-1,74	0,82	-1,76	-0,07	-1,68
Sweden	11,39	-0,35	-1,41	11,47	-0,18	-2,98	-4,25	2,04	-0,34	-8,99
Turkey	-17,33	20,59	3,26	6,05	6,02	-0,17	-7,61	-10,86	2,09	14,21
United Kingdom	18,61	17,61	-1,22	-5,98	-1,22	-0,38	-4,66	0,24	0,26	-1,49
Estimated Average	69,85	-55,17	1,77	9,99	5,51	2,93	111,60	50,83	-1,65	63,00
EU 27	-0,31	-0,08	-0,09	222,04	0,10	0,20	-4,67	-0,99	0,12	2,32
EU 16	-0,34	-0,09	-0,31	261,19	0,08	0,18	-4,92	-1,28	0,12	2,44
EU ENLARGED 11	1,93	0,88	6,80	-1016,76	1,63	1,13	11,90	12,04	-0,03	-5,50
EU AREA 17	-0,26	-0,07	-0,22	110,36	0,33	0,55	-4,46	-1,29	-1,40	1,49
NON-EURO AREA 10	-0,44	-0,10	0,41	607,17	-0,52	-0,36	-5,14	-0,12	5,19	4,47
State	-0,16	-0,43	-8,04	-26,77	1,13	0,52	2,17	-0,97	6,94	-5,55

THE EFFECTS OF GLOBAL FINANCIAL CRISIS ON THE BEHAVIOUR OF EUROPEAN BANKS: A
RISK AND PROFITABILITY ANALYSIS APPROACH

COUNTRIES	NIM	ROA	ROE	LEVERAGE X	REGULATORY CAPITAL / RISK-WEIGHTED ASSETS %	REGULATORY TIER 1 CAPITAL TO RISK-WEIGHT ASSETS %	Total Loans / Total Assets %	CONSUMER CREDİT / TOTAL CREDIT %	NPL / TOTAL GROSS LOANS	LIQUID ASSETS / TOTAL ASSETS %
Non-State	-0,29	-0,02	1,19	215,68	0,07	0,23	-5,34	-0,87	-0,89	3,03
Listed	-0,14	0,05	2,65	152,42	1,14	0,99	-6,90	3,69	-0,54	3,64
Unlisted	-0,37	-0,13	-1,41	216,09	-0,46	-0,23	-3,11	-3,67	0,15	1,25
Main Country	-0,10	-0,06	-0,76	-54,61	-0,16	0,02	0,06	-3,38	-0,20	-0,93
Main+Foreing Country	-0,43	-0,05	1,31	458,08	0,47	0,46	-8,71	1,80	-0,03	4,93
XXL	-0,49	-0,09	0,95	654,19	0,18	0,35	-10,95	-1,36	0,69	5,01
XL	-0,65	-0,15	-0,60	605,41	2,45	2,10	-3,66	1,22	4,45	2,19
L	0,13	0,03	0,55	-195,83	0,49	0,62	12,78	-0,70	0,95	-6,53
M	0,59	0,07	-0,60	-654,93	-0,14	0,25	11,58	-0,18	0,62	-5,00
S	0,56	0,25	0,60	-845,44	-4,07	-2,97	9,80	2,79	-7,67	-1,61
XS	0,76	-0,02	-2,44	-708,31	-2,72	-4,03	9,58	-6,75	-8,45	-5,67
Estimated Average	1,58	0,42	8,12	2157,52	10,48	7,86	50,04	8,69	10,70	23,93