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DOES CORPORATE GOVERNANCE HAVE AN EFFECT ON PERFORMANCE IN THE EUROPEAN BANKING SECTOR? EVIDENCE FROM A CRISIS ENVIRONMENT

After the financial crisis, the necessity to support large inefficient banks had a crucial impact on a number of economies in Europe. This paper focuses on the effect that corporate governance mechanisms has on performance for commercial banks operating in developed and emerging European markets. We test a model of market-based bank performance for a sample of 150 commercial banks from 27 European countries over a period from 2004 to 2011. As a result, we show that such governance mechanisms as ownership concentration, state ownership, board independence, and others do have a significant influence on bank performance. We also find significant differences between models for developed and emerging markets, as well as for different geographical regions. Studying the financial crisis provides us with evidence for structural movements in the relationship model between corporate governance and bank performance as a result of the 2008-2009 crisis. In general, the important determinants lose their significance after 2007. Though, due to the possible endogeneity problem in our models, we should be cautious when interpreting the causality of connections between factors.

Keywords: Corporate Governance; Bank Performance; Commercial Banks; Independent Directors; Ownership Structure; Financial Architecture; Emerging Markets

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1. Introduction

The financial crisis of 2007-2009 showed just how little we know about the governance of banks and how crucial the sustainability of the banking sector is. The corporate governance of banks has special relevance due to the specifics of the banking sector and its very special function in the economy. Hence, we need a better understanding of corporate governance as a driver of bank performance. The Basel Committee on Banking Supervision had called attention to the need to study and improve the corporate governance of financial institutions even before the financial crisis. The Basel Committee points out the importance of a structure with a board of directors and senior management (Enhancing Corporate Governance for Banking Organizations, 1999, 2006). The Basel Committee also states that good corporate governance is necessary to guarantee a sound financial system. Improving corporate board structures, with respect to their size and composition, has been one of the main issues in corporate governance initiatives undertaken by international authorities during the past decade (EU Commission Communication, 2003; Basel Committee, 2006).

On the other hand, ownership structure is not regulated. Firms are subject to disclose the shareholders that own more than a pre-determined percentage of equity, but this requirement differs across countries. In the last two decades many mergers and acquisitions in the banking sector have taken place all over the world and have changed the ownership type of banks from government to private or from domestic to foreign, and that have increased the average level of ownership concentration. These changes raise important research questions on, for example, what type of ownership and level of concentration are better for bank performance.

The main purpose of this paper is to examine the relationship between performance of European commercial banks and their corporate governance mechanisms, such as having a board of directors and their ownership structure. In addition, we test to see if there are significant differences in the interaction between corporate governance and performance in different markets (i.e. developed and emerging markets) and in different economic conditions (i.e. before and after the financial crisis). We provide this analysis using a sample of 150 European banks for the period from 2004 to 2011.

Our empirical analysis extends the existing literature in three main directions. First, in this paper we go beyond the traditional stylized models of relationship between corporate performance and an exact corporate governance indicator, such as the proportion of independent directos on an organization's board. The aim of this paper is to create and

evaluate a complex model of bank performance that combines the board of directors, ownership structure, and capital structure (leverage), which are the main elements in the concept of the firm's financial architecture, according to Myers (1999). A firm's financial architecture refers to the combination of different structural dimensions, including ownership structure, financing (leverage), corporate control, and governance. We believe that a research model consisting of all key components of the firm's financial design can better explain corporate performance.

Second, we contribute to a comparable analysis of bank performance drivers in different countries that have different levels of legislation and regulation development. In this paper, we construct a model for a pooled sample that consists of different European countries and conduct a comparison between banks in developed and emerging countries to find whether there are significant differences in the model of bank performance. This question is important in terms of adapting regulation from developed markets for regulatory use in emerging contries.

Finally, as far as the financial crisis is concerned, most papers in this area are focusing on bank performance during the crisis and trying to find out what corporate governance characteristics are associated with the underperformance banks. We examine whether there are structural changes in the models of bank performance as a result of the financial crisis of 2008.

The paper is organized as follows. Section 2 presents an overview of previous research in the area and the hypotheses of our empirical analysis. Section 3 describes the data sources and summarizes the sample's characteristics. Section 4 presents the empirical results. Section 5 provides a conclusion for this paper.

2. Research Method

In this section we review a number of research papers devoted to the impact of corporate governance mechanisms on bank performance and formulate our research hypotheses based on the previous literature and theoretical arguments. We first discuss the literature and hypotheses regarding the influence of the board of directors on bank performance. Second, we consider the literature an state our hypothesis on the influence of ownership structure. And finally we formulate additional hypotheses regarding the specifics of these relationships for markets with different levels of development and in a period of global financial distress.

2.1 Board of Directors

From a theoretical point of view, larger boards of directors gather more human capital, knowledge, and experience, which in turn helps the board to provide management with better monitoring and advice. On the other hand, too many board members can create additional problems with coordination and communication among directors in comparison to smaller boards. Within larger boards more compromises should be reached in order to make a decision, making this process less flexible and more time consuming. It also results in lower incentives for monitoring management and makes the board more dependent on the CEO's opinion, thereby harming efficiency (Yermack, 1996). In general, the effect of a board's size on bank value is a trade-off between advantages (human capital) and disadvantages (coordination problems). It would seemingly follow that such a trade-off should create a non-linear relation between board size and bank performance, yet little proof of this relationship can be found in the existing literature (Andres and Vallelado, 2008; Grove et al, 2011).

However, the majority of authors find this relation between board size and performance to be negative, showing that in developed markets the disadvantages of large boards are generally stronger than the advantages (Staikouras et al, 2007). This holds true in emerging markets, as well (Adusei, 2011; Pathan et al, 2007). Nevertheless, some authors show a positive relationship, arguing that the banking sector differs from other sectors and additional knowledge and experience provided by larger boards contributes to better bank performance (Adams and Mehran, 2008; Aebi et al, 2011; Belkhir, 2009). Taking into account the mixed results of previous research we formulate our first hypothesis.

Hypothesis 1: There is a negative relationship between board size and bank performance.

Both the codes of corporate governance in many countries and the Basel Committee recommend having a substantial proportion of outsiders on the board and take into account the advantages of their independence. However, the previous literature does not provide us with a conclusion regarding the effect of outside directors on the board.

On the one hand, independent directors have fewer conflicts of interest when monitoring managers. They are also less dependent on the CEO's opinion and they have a reputational incentive to better perform their functions in such a way that results in higher bank performance (Grove et al, 2011; Pathan et al, 2007). On the other hand, an excessive proportion of non-executive directors could damage the advisory role of boards. Moreover, some authors point out that the effectiveness of outside directors depends on the cost of acquiring information about the firm: When the cost of acquiring information is low, outsiders on board of directors increase performance (Duchin et al, 2010).

While there is major evidence suggesting a positive performance effect from independent directors, some authors do show a negative effect coming from outside directors, who report that the majority of affiliated directors on the board is correlated with higher performance (Kyereboah-Coleman and Biekpe, 2006; Bino and Tomar, 2012). Andres and Vallelado (2008) support the hypothesis about the trade-off in the situation with independent directors and show a reverse non-linear relationship between these and the performance of US banks, which also implies the existence of an optimal percentage of outsiders on the board.

Hypothesis 2: There is a positive relationship between board independence and bank performance.

During the last decade, the opinion that gender diversity can be beneficial to business has become widely accepted. However, the rate at which women are being integrated into senior positions remains extremely slow. Among the largest public companies across Europe, men account for 89% of board members, while women account for just 11% (European Commission, 2010).

Some studies provide empirical evidence that those companies with the highest share of women in executive committees outperform companies with no women – sometimes by as much as 41 percent in terms of return on equity (McKinsey & Company, 2010; Farrel and Hersh; 2005). One of the explanations for the positive effect of diversity among board members is that it increases creativity and innovation by adding complementary knowledge, skills, and experience. Compared to homogenous boards, boards that are more diverse boards evaluate more alternatives during the decision making process, which leads to better

corporate performance. Some studies argue that a gender-balanced board is more likely to pay attention to managing and controlling risk (European Commission, 2012).

Hypothesis 3: Increasing the percentage of women on a board of directors has a positive effect on bank performance.

There are other characteristics of boards of directors that receive much less attention in the existing literature. For example, CEO duality is considered to be a negative driver of bank performance (Pi and Timme, 1993; Grove et al, 2011). In our sample, only 4.5% of observed organizations have dual CEOs. We may therefore draw a conclusion about the insignificance of this factor even without regression analysis[3]. Such a small percentage may be caused by the fact that the beginning year for our sample is 2004 and some corporate governance codes (in the UK and Russia, for example) started to recommend the split of CEO and Chairman positions as far back as 2002.

2.2 Ownership structure

An ownership structure is usually defined along two main dimensions: The degree of ownership concentration and the type of the owners (the state, foreign entities, institutions, management, etc.).

A high ownership concentration has been proved to have a positive effect on a firm's values because large shareholders have more incentives to monitor the bank's management (Grove et al, 2011). On the other hand, large shareholders may have too much influence on the board and management and, if they have any goals besides the maximization of share value (as governments may have), then it may not be effective for the firm itself, as well as for minority shareholders. Rowe et al (2011), using Chinese banks, and Riewsathirathorn et al (2011), using East-Asian banks, both demonstrate that lower block ownership is associated with better performance. There is also evidence that this effect may differ in different institutional settings (Busta, 2008).

Existing empirical evidence is mixed and does not allow us to draw any conclusions. However, we believe that, in general, having a high ownership concentration is not effective for European banks, due to the reasons presented above. We therefore suggest the following hypothesis.

Hypothesis 4: There is a negative relationship between bank performance and ownership concentration.

[3] Though we have provided regression analysis and have proved the insignificance of CEO-Chairman duality for bank performance.

Among the other characteristics of bank ownership that are being studied is the type of shareholder: institutions, management, foreigners, and government. Many authors show a negative influence of state ownership, such as Berger et al (2009) studying China, Micco et al (2007) researching developing countries, and others. Results regarding foreign ownership are more mixed. For example, Berger et al (2009) show that in China foreign banks are the most efficient, while Lensink et al (2007) report from a worldwide sample that increases in foreign ownership negatively affect bank performance. We formulate the following hypothesis.

Hypothesis 5: There is a negative relationship between bank performance and state ownership.

2.3 Cross-country analysis and crisis environment

Our sample consists of banks from different European countries. To capture these differences, we use the concept of emerging and developed markets. There is a variety of interpretations for the term "emerging market", but we consider as emerging those countries that are going through the process of economic transition (for example, industrialization) and are at a stage of rapid growth and development. Twelve countries in our sample are considered to be emerging according to the classifications of some international organizations. The remaining fifteen countries in our sample have been recognized as "developed countries" by the Central Intelligence Agency (The World Factbook 2011, 2011).

We observe significant differences in a variety of development indicators for the two groups of countries included in our sample. Emerging countries have a much shorter history of a market economy compared to developed ones, which result in a lower level of institutional development. Emerging markets are characterized by a higher potential for growth (in both bank profits as well as in a country's GDP), but also by higher risks, including political instability. Banking systems in emerging markets are financially weaker in terms of capital and banks have to operate in conditions of limited competition. Financial markets in developed countries are more sophisticated and liberalized, characterized by better quality of accounting and reporting, higher transparency of the central bank, and better protection of rights for minority shareholders. These differences may explain the possible lower effectiveness of corporate governance mechanisms in emerging markets. Therefore, we formulate the following hypothesis.

Hypothesis 6: The relationship between corporate governance and bank performance is significantly different in developed and emerging markets.

We also create a separate model for the European Union's banking sector. This subsample is very special because all these countries are bound by many political and economic agreements and because most of them share the same currency. But most importantly, we would like to study a very special group of countries within the European Union: Portugal, Ireland, Italy, Greece, and Spain. Over the past couple of years, these countries have been involved in a severe sovereign debt crisis that puts at risk even the very existence of the Union and its currency in their current forms. As this crisis is directly related to the banking sector, we formulate following hypothesis.

Hypothesis 7: The relationship between corporate governance and bank performance is significantly different within the European Union between those countries that are suffering from a sovereign debt crisis and those EU members that are not.

Therefore, besides the concept of emerging markets, we analyse the differences between banking sectors using a regional classification that is based on the geographical position of countries. It may seem unrelated to the topic at first glance, but we see similarities in the development of countries within some regions. For example, the countries of northern Europe (Norway, Denmark, etc.) are among the wealthiest economies in the world, while some countries of southern Europe are struggling with a debt crisis (Greece, Italy, Spain). Therefore, not only do country-specific characteristics play an important role in determining corporate governance systems and banking performance, but regional development might also play an important role.

We base our regional classification on the geoscheme of the United Nations[4], but modify it by adding some elements from the CIA World Factbook. As a result, we obtain the regional classification for European countries included in our sample. For these five subsamples we formulate the following hypothesis.

Hypothesis 8: The relationship between corporate governance and bank performance differs significantly across different geographic regions.

There are some authors that are studying the role of corporate governance during the crisis (Hau et al, 2011), but we also would like to examine whether the whole model of bank performance changed as a result of the financial crisis. If we take a look at the dynamics of our corporate governance indicators, we do not see drastic changes, though we do notice a change in trend after the financial crisis. But if the measures of performance are being considered, we see a sharp decline in Tobin's Q and in total shareholder return in 2008, as

[4]United Nations Statistic Division, Composition of macro geographical (continental) regions, geographical sub-regions, and selected economic and other groupings. Available at http://millenniumindicators.un.org/unsd/methods/m49/m49regin.htm

well as a decrease in ROA and ROE in 2008-2009 in both developed and emerging countries. Therefore, we include in our regression analysis a very common dummy variable for the crisis year and also we test the following hypothesis.

Hypothesis 9: The relationship between corporate governance and bank performance differs significantly before and after the financial crisis of 2008.

In addition, we would like to see the dynamics of the relationship between corporate governance and bank performance. The statistical data from our sample show that two-year intervals could be used for an analysis of the model dynamics and also show the relationship between corporate governance and bank performance during the crisis for the 2008-2009 time interval.

3. Data and model

3.1 Data sources

To test the hypotheses listed above, we obtained information on corporate governance and performance in the European banking sector over the period of 2004–2011. The period for this research has been chosen because many banks from the sample published their first annual report or disclosed information about corporate governance in their annual reports for the first time in 2004. This particular period includes the crisis year, which allows us to study the impact of the financial crisis on the relationship between corporate governance and bank performance.

We obtained information on boards of directors and ownership structure from annual reports of banks published on their web sites and complementary financial information, including market prices and indicators from financial statements, and from the Bloomberg Database. Information about country specific indicators has been obtained from the World Bank database.

The sample includes 150 commercial banks from 27 European countries, which forms a balanced panel with up to 1020 observations for the models that we estimate. Eighty banks are from developed markets (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Ireland, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom), while 70 banks are from emerging markets (Bulgaria, Croatia, Czech Republic, Hungary, Lithuania, Poland, Romania, Russia, Serbia, the Slovak Republic, Slovenia, and Ukraine). Although the 150 banks in the sample represent only around 2% of the total number of banks in the 27 countries, they represent about 60% of banking assets and 63% of loans.

3.2 Model and main variables

The research model aims to verify the influence of governance mechanisms on the performance of commercial banks. The general equation of the model is as follows:

$$Performance = \beta_0 + \sum_{i=1}^{3} \beta_i \overline{Board} + \sum_{i=4}^{5} \beta_i \overline{Ownership} + \beta_6 Leverage + \\ + \sum_{i=7}^{8} \beta_i \overline{Risk} + \sum_{i=9}^{12} \beta_i \overline{Bank} + \sum_{i=13}^{15} \beta_i \overline{Country} + \beta_{16} Crisis \quad (1)$$

Where:

Performance is an indicator for a bank's performance,

Board is a vector of characteristics of the board of directors,

Ownership is a vector of characteristics of the ownership structure,

Leverage is an indicator of a bank's capital structure,

Risk is a vector of different risk measures,

Bank is a vector of bank-specific control variables,

Country is a vector of country-specific control variables,

Crisis is a dummy variable for the year 2008, when the financial crisis was at its strongest.

We measure bank performance by using four variables to control the results for robustness. Two of these variables are market based and two are based on book values. The research is mainly focused on Tobin's Q, which is a market-value based ratio. The second market-based indicator is total shareholder return (TSR), which takes into account changes in a bank's share price, and dividends paid to shareholders during the year. As book measures for a bank's performance, we use average return on assets (ROA) and average return on equity (ROE).

To measure ownership concentration, we use the sum of the three largest stakes in the bank's equity (MAJ3). We also incorporate the percentage of state ownership in the bank (GOVN). Foreign and institutional ownership did not appear to be significant in our models, though we still analyze these indicators in our statistics section.

Risk plays an essential role in the banking business, therefore we include a few measures of risk in the model. We measure a bank's risk with the ratio of non-performing assets to total loans (NPATL), volatility of operating income (OIVOL), and the beta coefficient (BETA) as an indicator of systematic risk. We also include in the model a bank's

capital structure by using the debt-to-equity ratio (LEV). A summary description of all key variables is presented in Appendix I.

To capture the effect of the financial crisis, we use a dummy variable that set equal to one for the year 2008 (CRISIS). For the European Union subsample, we create an additional dummy variable that equals one if the country accepted the euro as its currency (EURO).

3.3 Statistics and trends

The descriptive statistics for the main factors are presented in Appendix II. We tested the difference between averages for the subsamples of emerging and developed markets and proved its significance for the majority of indicators. The average size of the board is about 12 members in developed markets and 8-9 directors in emerging countries. The region with the largest boards is Western Europe (16 directors on average). At the same time, developed markets are characterized by a higher level of board independence – 54% on average versus 34% in emerging countries.

The average stake owned by a majority shareholder, which can be used to indicate ownership concentration levels, is 59% of shares in emerging countries and only 32% in developed ones. Northern Europe shows the lowest ownership concentration in banks, with a 20% average majority shareholder stake, while the countries of central and eastern Europe show the highest average, at about 65%. The situation with foreign and state ownership is also remarkable. Central and eastern European countries have the highest percentage of foreign ownership (67%), which reflects that there are few local commercial banks operating in this region due to the fact that many of them have been purchased by large international banks. Eastern Europe, with a 23% government stake on average, shows the highest involvement of government across our sample.

Following the dynamics of the main indicators of corporate governance during the period from 2004 to 2011 for developed and emerging markets, we see the size of boards of directors as slightly decreasing over the period by one director on average for both subsamples. We observe that ownership concentration – measured as sum of the stakes of the three largest shareholders – increased over the 8-year period by 11%, which demonstrates a very strong consolidation trend in the sector. Over the years, ownership by institutional investors grew by 4% up to 29% on average, while state ownership grew by 5%, thusly demonstrating a decrease in participation from retail investors.

We want to follow the specifics of the European Union within our sample and the differences between countries that heavily suffering from the European sovereign debt crisis

(PIIGS) and other EU members. We see that on average boards are slightly bigger and more independent in the EU than in the total sample. Within the EU, the PIIGS countries have a higher average number of directors on their boards (16) than do other countries (12). We show the statistics for female directors here, since the diversity on boards and in senior management positions is considered to be a very important issue in the EU. Nevertheless, we see that the percentage of female directors is lower for the EU than for the total sample. Ownership concentration and state ownership are lower while foreign ownership is higher in the EU than in the total sample. Interestingly, the stake of majority shareholders, levels of foreign ownership, and levels of state ownership are lower in the PIIGS countries than in the rest of the EU. This may imply that, within the EU, countries with higher government involvement and foreign capital in the banking sector suffered less from the sovereign debt crisis.

4. Results

For the sample of 150 European banks, we estimated fixed effect regressions for four measures of performance. We view Tobin's Q as the main performance indicator. Therefore we discuss the obtained results mainly for this indicator and use other performance variables to provide a robustness check (Appendices III-IV).

Some corporate governance factors appeared to be insignificant in all or almost all regressions. Among them are the number of meetings a board of directors holds annually, the share of female directors[5], and institutional and foreign ownership.

4.1 Model for European banking sector

For the total sample consisting of 27 European countries, we obtained a model describing the relationship between corporate governance and strategic performance of commercial banks.

The relationship between the size of a board of directors and bank performance is negative for the total sample and close to the acceptable levels of significance. Hypothesis 1 about the negative relationship between board size and bank performance has not been rejected for Tobin's Q, which supports some of the previous research papers and the widespread opinion that smaller boards are better for firm performance.

[5] We included the variable for female directors only in models for the European Union sample due to the special relevance of this issue in the EU.

We find that independent directors are negatively related to the strategic performance of commercial banks. This result runs contradictory to the common view on independent directors and to our second hypothesis. The main corporate governance principles that are included in corporate governance codes are based on this view and therefore many of them have a minimal requirement for the number of independent directors on boards. Hypothesis 3, which regards the impact of female directors on bank performance, also cannot be accepted as this factor appeared to be insignificant in our models.

As for our fourth hypothesis, the relationship between ownership concentration and strategic bank performance is negative. One of the possible explanations for this is that large shareholders influence management and/or the board of directors and advocate ineffective decisions leading to worse performance. The market is aware of such a possibility and often sees concentrated ownership or the existence of a majority shareholder as a bad signal. This may result in a discount to such a company's share price that is being reflected in Tobin's Q.

State ownership has a positive effect on bank performance, which supports one of the existing views, though contradicts the fifth hypotheses. We view Tobin's Q as an indicator of strategic performance that is more long-term than book measures that are based on one-year operating income. Therefore, the obtained result shows that government involvement in commercial bank capital is good from a strategic and long-term perspective. Such a bank may receive help from the state during financial crises, which fact is likely to increase market confidence in this particular bank.

We find that the financial crisis of 2008 had a significant negative impact on the strategic performance of European commercial banks measured in terms of Tobin's Q. This partly supports our hypothesis about the significance of the financial crisis for bank performance and suggests that this question must be addressed.

4.2 Developed and emerging markets

As we discussed earlier, the developed and emerging market subsamples have significantly different characteristics. Therefore, for the models that we obtained and discussed in section 4.1 we run a Chow test to determine if there are structural differences in the coefficients. The differences in coefficients appeared to be significant for all four measures of bank performance (see Appendix III), which means that Hypothesis 6 cannot be rejected.

The effect of board size is negative for emerging and developed markets but is significant only for developed economies. The effect of board independence loses its

significance if the model is estimated for the two separate subsamples, though it still remains negative.

In the Tobin's Q model, we observe a significant negative effect of ownership concentration for emerging markets only. The positive impact of state ownership is also insignificant for developed markets, though it does remain positive. This leads to the conclusion that the characteristics of ownership structure are less important for bank performance in developed countries.

We find that the effect of the crisis is negative and significant for both markets, but it is stronger for emerging markets in terms of the level of significance and value of the coefficient (-0.085 vs. -0.014).

In general, the significant factors of the model for developed markets are the financial crisis, systematic risk, and size of the market. Among corporate governance variables, only board size has a significant negative relationship with bank performance. Therefore, the strategic performance of commercial banks from developed markets has other determinants and is not explained by our corporate governance variables and controls.

4.3 Before and after the crisis

We discussed earlier that the dependent variables in our models demonstrate a strong decrease as a result of the financial crisis. The Chow statistics show that the model for the relationship between corporate governance and performance is significantly different before and after the crisis of 2008 for all measures of performance, except for the model for return on equity. However, even for ROE this difference is significant at the 15% level (see Appendix IV).

For Tobin's Q, the effect of board independence changed the sign after the crisis and became negative, though the coefficient is insignificant. The negative impact of ownership concentration was more significant during the period of prosperity, as well was the impact of a bank's size. The relationship between a bank's age and performance changed the sign to negative after the crisis, meaning that more mature banks suffered more from the financial crisis.

In general, variables that were significant before the crisis lost their significance after 2007. This means that bank performance after the crisis must be explained by other factors. All the changes in the models support our seventh hypothesis about structural movements in the relationship between corporate governance and bank performance as a result of the financial crisis.

4.4 European Union

We estimated a separate model for the relationship between corporate governance and bank performance within the European Union. The sample includes 96 banks from 21 countries (see Appendix V). We also estimated the regression for subsamples of the PIIGS countries and other EU members. The Chow test showed that the coefficients are significantly different for these two subsamples, which supports our Hypothesis 6.

Board size is negatively associated with Tobin's Q and the value of the coefficient is almost similar for the total European Union sample, the PIIGS countries, and other EU members. The percentage of female directors is positively associated with strategic bank performance at levels close to relevant significance, while independent directors do not show significant correlation with bank performance. The effect of ownership concentration is negative, but significant only in PIIGS countries. The positive impact of state ownership is sustainable for the European Union, as well as for the entire sample.

For the EU model, we introduced a new dummy variable that is set equal to one if a country adopted the euro as its main currency. For all measures of performance, this variable has a significant and negative coefficient. This means that banks in countries that adopted the euro have worse performance than banks in countries that kept their own currencies.

In general, the model for PIIGS countries has only a couple of significant determinants, and among the bank-specific determinants are bank size and ownership concentration, which are both negatively connected with bank performance.

4.5 Geographical regions and time intervals

We also estimated separate models for five different geographic regions and for four two-year time intervals to control for additional geographical and time specifics. This analysis shows us that bank performance in terms of Tobin's Q and total shareholder return were the least hurt by the crisis in western Europe and the most hurt in eastern Europe. Therefore, we have to take into account the banking sector's vulnerability in some countries when talking about the impact of corporate governance on performance.

The negative effect of board size is the strongest in northern Europe. We observed the strongest negative effect of ownership concentration on all measures of performance in central and eastern Europe, where we also see a dominance of big international banks. This is evidence that such a structure in the banking sector is less than advantageous. State ownership is significantly positive only for the Tobin's Q of banks in eastern Europe, but

significantly negative for northern Europe. All these differences prove that there are some important differences in how corporate governance influences bank performance in different countries (see Hypothesis 8). Therefore, when corporate governance principles are being established, an different, individualized approach must be taken in every country.

Considering the time specifics of the model, we see that the board independence became negatively associated with Tobin's Q in 2010-2011, while for book-value-based measures of performance the coefficient for independent directors changed its sign in 2008-2009. The negative effect of ownership concentration on strategic bank performance was the strongest during the crisis of 2008-2009. The effects of bank size and market size changed their signs during the financial crisis of 2008-2009. Moreover, the model for Tobin's Q for 2008-2009 has the worst quality of all: 15% of adjusted R-squared as opposed to 80-96% for other time intervals.

4.6 Robustness check

We have run all these regressions for four measures of bank performance to check whether the results are robust. Total shareholder return has the same determinants as Tobin's Q, except for the independence of directors and the size of a board of directors.

We recorded a negative impact of independent directors on strategic performance, but we observe a sustainable positive relationship between book measures of performance and independent directors. The effect of board size is negative in some cases, but mostly insignificant for other performance measures.

Ownership concentration has a significant negative impact over all measures of performance, however state ownership is not important for book measures. The effect of the financial crisis is also significant for total shareholder return, but is insignificant for book measures of performance. This may be explained by the fact that book indicators reflected the crisis for several subsequent years.

Book performance has one more significant determinant that market-based measures do not have: diversification of income. The effect of diversification is positive and sustainable for different subsamples. Evidently, non-interest income is a separate financing source that improves bank performance – specifically returns – independently from other factors.

Therefore, different measures of performance tend to have various significant factors in models. In general, models for market-value-based measures have almost similar determinants. The same is true for book measures of performance. Among all factors,

ownership concentration is the most robust one as its negative coefficient is significant in the majority of the estimated models.

4.7 Policy implications

The results we obtained raise a question: What would be a better form of corporate governance? And if we see a negative effect in some factors (for example, ownership concentration or board size), should this be regulated by legislation?

The independence of boards has a negative impact on strategic performance, but it has a significant positive effect on book measures of performance. Therefore, we can suppose that in a short-term perspective independent directors are beneficial for bank performance. They help to make decisions that lead to better returns, but they might an lack understanding of a bank's strategy and other specifics, which leads to a worse long-term performance. There are minimal requirements in corporate governance codes of some countries regarding the share of outside directors (for example, 33% or 25% of the board). And there probably should be minimal requirements regarding inside directors, as they have easier access to information about the bank and a better understanding of its inside processes.

Following the same argumentation, corporate governance codes should contain some reasonable restrictions for the size of a board of directors. The board should not consist of too many directors, as this creates coordination problems and, according to our results that are in line with the common opinion, the appointment of additional directors to the board may harm its effectiveness and lead to worse performance.

We observe a sustainable negative effect of ownership concentration, but it is uncertain whether government could regulate it or not. If it is possible to find legal reasons to limit the equity ownership of one shareholder, the problem of picking up an acceptable level of ownership is rather complex. If the bar is too low, it will not help to increase the efficiency of banking governance. But if the bar is too high, the ownership structure may become too disperse and the bank's shareholders will represent a big group of people that are not enough involved in the bank's equity to monitor its performance well. In this instance the role of the board of directors becomes extremely important.

State ownership restriction is also a controversial question. On the one hand the state helped some banks during the financial crisis and signaled to the market by such action that these banks are close to bankruptcy. On the other hand, these banks have been saved as a result. In exchange for these bail-outs, government established paying out schemes in some cases, thereby restricting the future returns of these banks. At the same time, the market

positively views the fact that the state is backing up a bank, as such an act increases the market's confidence in this bank's future. But again, the state can limit a bank's effectiveness as private owners may bring more capital, business, and entrepreneurial experience, although less guarantees. Therefore, the question regarding state involvement is still unresolved.

5. Conclusion

The financial crisis demonstrated the great importance of commercial banks in the economic system, which strengthens the need to study the corporate governance of banks. We analyzed the relationship between corporate governance mechanisms and performance in European commercial banks using a sample of 150 banks from 27 countries over the period from 2004 to 2011.

We observe that, on average, higher ownership concentration is associated with worse bank performance in Europe, while state ownership has a positive effect on market-based performance indicators. The relationship between board size and European bank performance is either negative or insignificant, which supports the widespread opinion that smaller boards are more effective. The percentage of independent directors on boards is negatively correlated with bank performance, but demonstrates a sustainable positive relationship with book returns. This raises a question regarding the difference between an independent director's effect in the short-term and in the long-term perspectives.

We also find significant differences between models for developed and emerging markets, as well as for different geographical regions. For example, the negative effect of board size is the strongest in northern Europe. The strongest negative effect of ownership concentration on all measures of performance is observed in central and eastern Europe, where we also see a dominance of big international banks.

The determinants of performance for the banking sector in the European Union are almost similar to the ones for the entire sample. For the EU we also control for the currency effect and find that banks in countries that adopted the euro as their official currency have poorer performance than banks in countries that kept their own currencies. The model for the PIIGS countries in general is of a poorer quality, which implies the existence of other connections between corporate governance and bank performance in this group of countries.

Studying the financial crisis provides us with evidence of structural movements in the relationship between corporate governance and bank performance as a result of the 2008-2009 crisis. In general, the important determinants lose their significance after 2007. We find that the effect of the crisis was stronger in the emerging countries of eastern Europe, while

the market performance of commercial banks has been the least hurt during the crisis in western Europe.

The obtained results prove that there are some important differences in how corporate governance influences bank performance in different countries and during different stages of the economic cycle. Therefore, when corporate governance principles are being established an individual approach must be taken for every country, and one must also consider the probability of a financial crisis. Though, due to possible endogeneity problems in our models, we should be cautious when interpreting the causality of the connection between these factors.

This empirical study may be interesting for top managers of commercial banks, as well as for shareholders and board members. Our findings can provide them with some recommendations regarding the ways to boost bank performance by changing its corporate governance system. This study may be also useful for regulators as part of empirical evidence for future regulatory recommendations regarding corporate governance structures.

References

1. Adams R.B., Mehran H., 2008, Corporate performance, board structure, and their determinants in the banking industry. // Federal Reserve Bank of New York Staff Reports, no. 330. (Electronic copy: http://ssrn.com/abstract=1150266)
2. Adams, R.B., and D. Ferreira, 2009, Women on the boardroom and their impact on governance and performance, Journal of Financial Economics 94, 291-309.
3. Adusei, M., 2011, Board structure and bank performance in Ghana, Journal of Money, Investment and Banking 19.
4. Aebi, V., G. Sabato and M. Schmid, 2011, Risk management, corporate governance, and bank performance in the financial crisis, Journal of Banking & Finance, forthcoming.
5. Andres, P. de, E. Vallelado, 2008, Corporate governance in banking: The role of the board of directors, Journal of Banking and Finance 32, 2570-2580.
6. Basel Committee on Banking Supervision, 1999 & 2006, Enhancing Corporate Governance for Banking Organizations. (Electronic copy: http://www.bis.org/publ/bcbs122.pdf)
7. Belkhir, M., 2009, Board of directors' size and performance in the banking industry, International Journal of Managerial Finance, Vol. 5, No. 1.
8. Berger, A.N., I. Hasan and M. Zhou, 2009, Bank ownership and efficiency in China: What will happen in the world's largest nation?, Journal of Banking & Finance 33, 113–130.
9. Bino, A., and S. Tomar, 2012, Corporate governance and bank performance: evidence from Jordanian banking industry, Journal of Business Administration, forthcoming.
10. Busta, I., 2008, Corporate governance in banking: a European study, Copenhagen Business School, The PhD School in Economics and Business Administration, PhD Series 15.2008.
11. Duchin, R., J.G. Matsusaka and O. Ozbas, 2010, When Are Outside Directors Effective?, Journal of Financial Economics 96, 195-214.
12. European Commission Recommendation, 2005/162/EC.
13. European Commission, 2010, More women in senior positions – Key to economic stability and growth, Directorate-General for Employment, Social Affairs and Equal Opportunities.
14. European Commission, 2012, Women in economic decision-making in the EU: Progress report. A Europe 2020 initiative.
15. Farrel, K.A., and P.L. Hersh, 2005, Additions to corporate boards: the effect of gender, Journal of Corporate Finance 11, 85– 106.
16. Grove, H., L. Patelli, L.M. Victoravich and P. Xu, 2011, Corporate Governance and Performance in the Wake of the Financial Crisis: Evidence from US Commercial Banks, Corporate Governance: An International Review, Vol. 19, 5, 418-436.
17. Hau H., J. Steinbrecher and M. Thum, 2011, Bank Governance and the Crisis: Did board (in)competence matter for bank performance during the recent crisis?, The European Financial Review.
18. Kyereboah-Coleman, A., and N. Biekpe, 2006, Do boards and CEOs matter for bank performance? A comparative analysis of banks in Ghana, Corporate Ownership and Control, Vol. 4, Issue 1.
19. Lensink, R., and I. Naaborg, 2007, Does foreign ownership foster bank performance?, Applied Financial Economics, 2007, 17, 881–885

20. McKinsey&Company, 2010, Women Matter 2010, Women at the top of corporations: Making it happen.
21. Micco, A., U. Panizza and M. Yanez, 2007, Bank ownership and performance. Does politics matter?, Journal of Banking & Finance 31, 219–241.
22. Myers, S.C., 1999, Financial Architecture, European Financial Management, Vol. 5, No. 2, 133-141.
23. Pathan, S., M. Skully and J. Wickramanayake, 2007, Board size, independence and performance: an analysis of Thai banks, Asia-Pacific Finan Markets 14, 211-227.
24. Pi, L. and S.G. Timme, 1993, Corporate control and bank efficiency, Journal of Banking and Finance 17, 515-530.
25. Riewsathirathorn, P., S. Jumroenvong and P. Jiraporn, 2011, The impact of ownership concentration on bank performance and risk-taking: evidence from East Asia, The Journal of Emerging Markets, forthcoming.
26. Rowe, W., W. Shi and C. Wang, 2011, Board governance and performance of Chinese banks, Banks and Bank Systems, No. 1, 2011.
27. Staikouras, P.K., C.K. Staikouras and M.E. Agoraki, 2007, The effect of board size and composition on European bank performance, European Journal of Law and Economics 23, 1-27.
28. The World Factbook 2011. Washington, DC: Central Intelligence Agency, 2011. https://www.cia.gov/library/publications/the-world-factbook/index.html
29. Yermack, D., 1996, Higher market valuation of companies with a small board of directors, Journal of Financial Economics 40, 185-2011.

Appendices

Appendix I.	
Description of main variables used in the regression analysis.	
	Board of Directors
NMEET	Number of meetings of board of directors during a year.
BSIZE	Size of the board of directors, i.e. number of directors in the bank's board of directors.
IND	Percentage of independent directors on the board of directors of the bank.
FEM	Percentage of female directors on the board of directors of the bank.
	Ownership Structure
MAJ1	Equity share of the majority shareholder of the bank, %
MAJ3	Equity share of the three largest shareholders of the bank, %
GOVN	Shareholding of the government in the bank's ownership, %
FORN	Shareholding of foreign investors in the bank's ownership, %
INST	Shareholding of institutional investors in the bank's ownership, %
	Bank specific controls
AGE	Bank's age, i.e. natural logarithm of number of years since the bank has been founded.
SIZE	Bank's size, i.e. natural logarithm of total assets of the bank.
DIVERS	The percentage of non-interest income in total income, as a control for bank's diversification.
GNII	Annual growth of net interest income of the bank (%), as a control for the bank's growth and development in its core business area.
LEV	Leverage, i.e. total debt to common equity, as a control for the bank's capital structure.
NPATL	Ratio of non-performing assets to total loans, measure of risk.
OIVOL	Volatility of operating income, measure of risk.
BETA	Coefficient beta, measure of systematic risk.
	Country specific controls
GDP	Annual GDP growth (%), as a control for country development.
MSIZE	Natural logarithm of market capitalization of all listed companies in the country, proxy for size of market.
NPR	Non-performing loans ratio in the country's banking sector, proxy for country risk.
	Performance measures
ROA	Return on average assets of the bank, measure of bank's profitability.
ROE	Return on average equity of the bank, measure of bank's profitability.
TOBQ	Tobin's Q that was calculated as ratio of (Total assets + (Market value of equity – Book value of equity)) to Total assets, measure of bank's strategic performance.
TSR	Total shareholder return, based on change of market share price during the year and dividends paid.
	Dummies
EURO	Dummy variable that equals one if the country has a the euro as its currency and zero otherwise.
CRISIS	Dummy variable that equals one for the 2008 crisis year and zero otherwise.

Appendix II .

Cross-regional comparison of statistics for the main variables.

The table reports the summary statistics of the main variables for the total sample (27 countries), emerging markets, developed markets, European Union, PIIGS, as well as in time dimension. The table also shows the significance of the differences in means for emerging and developed market subsamples (P-value).

	Region	Europe (total sample)	Emerging Markets	Developed Markets	Before crisis	2008	After crisis	European Union	PIIGS	Others
	Banks	*150*	*70*	*80*				*96*	*29*	*67*
	Variable									
BoD	*NMEET*	12.22	13.02	12.01	10.86	12.49	13.22	11.03	13.42	9.84
	BSIZE	11.90	8.37	14.83	12.32	11.74	11.53	13.58	16.38	12.30
	FEM	0.14	0.14	0.14	0.13	0.14	0.14	0.12	0.07	0.14
	IND	0.45	0.34	0.54	0.45	0.45	0.45	0.49	0.51	0.48
OS	*MAJ1*	0.45	0.59	0.32	0.42	0.45	0.47	0.40	0.34	0.43
	MAJ3	0.56	0.74	0.41	0.52	0.57	0.59	0.49	0.40	0.53
	GOVN	0.11	0.17	0.06	0.09	0.10	0.13	0.06	0.03	0.07
	FORN	0.27	0.37	0.15	0.24	0.29	0.28	0.30	0.16	0.34
	INST	0.48	0.48	0.48	0.47	0.50	0.48	0.53	0.53	0.53
Banks specific controls	*AGE*	3.62	2.98	4.19	3.54	3.65	3.71	3.86	4.11	3.76
	SIZE	3.11	1.51	4.45	2.91	3.25	3.30	3.83	4.42	3.57
	DIVERS	0.28	0.26	0.30	0.31	0.19	0.25	0.29	0.28	0.30
	GNII	0.18	0.27	0.11	0.27	0.36	0.10	0.13	0.11	0.14
	LEV	6.44	2.80	9.48	6.46	7.48	6.42	7.96	8.03	7.93
	NPATL	0.05	0.07	0.04	0.03	0.04	0.06	0.04	0.05	0.04
	OIVOL	0.65	0.15	1.05	0.37	0.95	0.90	0.69	0.54	0.76
	BETA	0.83	0.75	0.90	0.73	0.87	0.93	0.87	0.90	0.86
Country specific controls	*GDP*	0.02	0.04	0.01	0.05	0.02	0.00	0.02	0.01	0.02
	MSIZE	5.44	4.48	6.28	5.55	5.16	5.32	5.48	6.08	5.22
	NPR	0.05	0.07	0.03	0.04	0.03	0.05	0.04	0.04	0.04
Performance	*ROA*	0.01	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01
	ROE	0.13	0.14	0.12	0.21	0.06	0.05	0.13	0.14	0.13
	TOBQ	1.05	1.10	1.02	1.10	0.99	1.01	1.04	1.03	1.05
	TSR	0.06	0.12	0.03	0.30	-0.58	-0.12	0.04	-0.02	0.07

Appendix III.

Bank corporate governance and performance in developed and emerging markets.

The table presents regression results of bank performance on indicators of corporate governance with controls for bank and country specifics for both the entire sample and two subsamples (emerging and developed markets). A Chow test has been used to check whether there are significant structural differences between coefficients in the models for different markets. The probability for this test is shown in the table. Panel A presents the results for market-value-based measures of performance and Panel B shows the estimates for book measures. The table presents the following regressions: (1) Estimated coefficients for the total sample; (2) the subsample of emerging countries; and (3) the subsample of developed countries. Robust standard errors were used. *, **, *** indicate significance at the 15%, 10% and 5% levels respectively.

PANEL A: Market-Based Performance

Dependent variable	Tobin's Q			Total Shareholder Return		
Variable	(1)	(2)	(3)	(1)	(2)	(3)
CRISIS	-.0379***	-.085***	-.014*	-.583***	-.718***	-.532***
BSIZE	-.0013	-.009	-.001**			
IND	-.1162**	-.185	-.003			
MAJ3	-.0937*	-.296***	.033	-.449**	-.602	-.509**
GOVN	.2026***	.460***	.014	.595**	.655	.663**
AGE	-.0545***	-.111*	-.011	-.427***	-.869***	-.270***
SIZE	-.0513***	-.087***	-.024	-.262***	-.153	-.297***
GNII	.0381**	.043	.025	.160**	.167	.030
LEV	-.0026**	-.007**	.000	-.018***	-.043***	-.009
BETA	-.0359**	-.018	-.076***	-.166*	-.187	-.233***
GDP	.3038***	.335	.054	-3.192***	-2.215*	-5.416***
MSIZE	.0690***	.105***	.050***	.345***	.274***	.406***
cons	1.2132***	1.498***	.943***	1.297***	2.701***	.584
Adjusted R^2	***0.483***	***0.511***	***0.479***	***0.346***	***0.284***	***0.432***
Prob. F-stat	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Chow prob.		*0.000*			*0.012*	
Number of observations	*869*	*322*	*547*	*855*	*298*	*557*

PANEL B: Book-Based Performance

Dependent variable	Return on Assets			Return on Equity		
Variable	(1)	(2)	(3)	(1)	(2)	(3)
BSIZE	.000	-.001**	.000			
IND	.009***	.011**	.004*	.145***	.122*	.183***
MAJ3	-.009**	-.009	-.015***	-.245***	-.172*	-.273***
SIZE	-.001	.004***	-.004***	.020	.055***	.013
DIVERS	.048***	.097***	.014*	.611***	.905***	.410***
GNII	.010***	.015***	.001	.122***	.136***	.080***
LEV	-.001***	-.001***	.000**	-.009***	-.016***	-.006
OIVOL				-.032***	-.026	-.030***
BETA				-.041*	-.007	-.113***
GDP	.026*	.005	.026**	.520***	.494***	.194
MSIZE	.005***	.003	.007***	.068***	.033*	.099***
NPR	-.070***	-.057**	-.064***			
cons	-.021***	-.015	-.010	-.336***	-.260***	-.491***
Adjusted R^2	***0.583***	***0.678***	***0.394***	***0.607***	***0.651***	***0.595***
Prob. F-stat	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Chow prob.		*0.000*			*0.009*	
Number of observations	*1020*	*452*	*568*	*1020*	*452*	*568*

Appendix IV.

Bank corporate governance and performance before and after the financial crisis.

The table presents regression results of market-based bank performance on indicators of corporate governance for two subsamples: before and after the financial crisis of 2008. A Chow test has been used to check whether there are significant structural differences between coefficients in the models for different markets. The probability for the test is shown in the table. The table presents the following regressions: (1) Estimated coefficients for the period of 2004-2007; and (2) for the period of 2008-2011. Robust standard errors were used. *, **, *** indicate significance at the 15%, 10% and 5% levels respectively.

Market-Based Performance

Dependent variable	Tobin's Q		Total Shareholder Return	
Variable	(1)	(2)	(1)	(2)
CRISIS		-.0035		-.5144***
BSIZE	.0020***	.0025		
IND	.0478	-.1849		
MAJ3	-.0856*	-.1023	.2353	.0014
GOVN	.0057	.1619	.9588*	.4001
SIZE	-.0680***	-.0443	.0675	-.0692
AGE	.0042	-.0323	-.1942**	-1.6083***
GNII	-.0030	-.0195	.0827	.1103
LEV	-.0009	-.0032	-.0426***	-.0237***
BETA	.0217*	.0207	-.4209***	.0169
GDP	-.0906	.0332	6.0593***	-4.4005***
MSIZE	.0974***	.0538***	-.0895	.5399***
cons	.7626***	1.1115***	1.5595***	3.7043***
Adjusted R^2	*0.872*	*0.519*	*0.338*	*0.267*
Prob. F-stat	*0.000*	*0.001*	*0.000*	*0.000*
Chow prob.	*0.000*		*0.001*	
Observations	*387*	*482*	*362*	*493*

Appendix V.

Bank corporate governance and performance in the European Union.

The table presents regression results of market-value based bank performance on indicators of corporate governance with controls for bank and country specifics for three subsamples: The whole European Union, the PIIGS countries, and the other, non-PIIGS EU countries. A Chow test has been used to check whether there are significant structural differences between coefficients in the models for the PIIGS countries. The table presents the following regressions: (1) Estimated coefficients for the EU sample; (2) for the PIIGS countries; and (3) for the other EU countries. Robust standard errors were used. *, **, *** indicate significance at the 15%, 10% and 5% levels respectively.

Market-Based Performance

Dependent variable	Tobin's Q			Total Shareholder Return		
Variable	(1)	(2)	(3)	(1)	(2)	(3)
CRISIS	-.0297***	.0005	-.0338***	-.5345***	-.4884***	-.5558***
BSIZE	-.0014	-.0019	-.0016			
IND				.1255	.0397	.1314
FEM	.0561	.0369	.0709			
MAJ3	-.0446	-.1011*	-.0404	-.5504**	-.5161	-.5098
GOVN	.0683***	.0454	.0556**	.7006**	1.0122*	.6370*
SIZE	-.0197	-.0864***	-.0064	-.2508***	-.0905	-.2667***
AGE	-.0594***	.0054	-.0858***	-.3196***	-.1068	-.4040***
DIVERS				.2508	-.3698	.3888
GNII	.0268*	-.0467	.0426***	.1817***	-.1003	.2444***
LEV	.0000	-.0011	.0003	-.0092	-.0170***	-.0044
BETA	-.0558***	-.0054	-.0622***	-.1812***	-.6021***	-.0773
GDP	.0734	.2245	.0009	-4.2439***	-.9769	-4.9104***
MSIZE	.0618***	.0705***	.0732***	.3443***	.2364***	.3767***
NPR	-.3189**	.0345	-.4298***			
EURO	-.0627***		-.0549***	-.6139***		-.6156***
cons	1.1375***	1.0523***	1.1226***	1.1881***	.3939	1.1622***
Adjusted R^2	*0.488*	*0.546*	*0.495*	*0.425*	*0.487*	*0.418*
Prob. F-stat	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Chow prob.		*0.039*			*0.010*	
Observations	*665*	*194*	*471*	*637*	*191*	*446*

Appendix VI.

Bank corporate governance and performance in different time periods.

The table presents the regression results of bank performance on indicators of corporate governance with controls for bank and country specifics for the four two-year time periods. Panel A presents the results for market-value based measures of performance and Panel B shows the estimates for book measures. Robust standard errors were used. *, **, *** indicate significance at the 15%, 10% and 5% levels respectively.

PANEL A: Market-Based Performance

Dependent variable	Tobin's Q				Total Shareholder Return			
Variable	2004-2005	2006-2007	2008-2009	2010-2011	2004-2005	2006-2007	2008-2009	2010-2011
CRISIS			.0337				-.8912***	
BSIZE	.0002	.0046	.0003	.0016				
IND	.0109	.1799	.0562	-.0014				
MAJ3	.0602	-.0790	-.1216	-.0759	-.0475	.7960	.9625*	.8503
GOVN	.2020	.0159	.0547	.0247	1.4135*	2.3421***	-1.3228***	-.6807***
SIZE	-.0895	-.0612	.0811	-.0701**	.2714	-.3588	-.0981	.0857
AGE	.1083	-.1029	.0023	-.3526***	-.8769***	-.0360	-.5391	-1.3929
GNII	.0239	-.0062	-.0253*	-.0054	.1814	.5202***	-.0055	-.2157**
LEV	.0003	-.0021	-.0019	.0009	-.0185	-.0903***	-.0123	-.0094
BETA	-.0011	.0185	.0870*	-.0087	-.6456**	-.4220*	.0554	.2039
GDP	-1.6195	.1779	-.4964	-.2963	7.8578	4.0116	-.0900	1.6707
MSIZE	.1006**	.0781**	-.0104	.0395***	.1373	-.8376***	.3057*	.5875***
cons	.4390	1.1636***	.7132*	2.4543***	2.1071	6.9384***	.7921	1.2693
Adjusted R2	***0.802***	***0.903***	***0.149***	***0.959***	***0.343***	***0.453***	***0.387***	***0.286***
Prob. F-stat	*0.069*	*0.010*	*0.131*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Observations	*165*	*222*	*242*	*240*	*151*	*211*	*248*	*245*

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