

Katarzyna SUM\*

## The Impact of Banking Regulation on the Economic Performance of EU Countries in 2007-2009

---

**Summary:** The article investigates the role of a broad array of banking regulatory features in shaping the resilience of European Union countries to the latest financial crisis. The study considers the level of output, the yearly averages of the month-to-month government bond yield spreads, and the yearly variance of these spreads as performance measures. Moreover, the author considers house price growth, public debt levels, financial openness and the extent of private credit as basic factors determining the vulnerability of EU countries to the crisis. The empirical specification is based on dynamic panel data models, which are estimated using the Generalized Method of Moments (GMM).

The basic regressions including the main predictors of the crisis are expanded to include interaction terms between banking regulatory measures and the specified predictors. This approach is aimed at seizing the marginal effect of banking regulation on the impact of the respective factors of the crisis. The sample encompasses 25 EU countries during the period of 2004-2009. The choice of the time sample is aimed at capturing the developments in the economic cycle preceding the crisis, which affected the performance of EU economies during the downturn of 2007-2009. To capture the effect of the crisis itself, time effects are computed.

The results point to a significant role of banking regulatory features in shaping the performance of EU countries as well as to their mitigating effect on the factors driving the latest financial crisis.

**Keywords:** banking regulation, housing boom, financial crisis

**JEL classification codes:** F36, G15, G28

---

Artykuł wpłynął do druku 4 marca 2013 r.

---

\* Chair of International Finance, Warsaw School of Economics, e-mail: ksum@sgh.waw.pl

## Introduction

The issue of the vulnerability of economies to financial crises has become a particularly topical one in the last few years. A broad strand of literature focuses on the probability of a crunch in the financial system depending on the economic, legal and political features of a country. Substantial attention has been given to the factors behind the emergence of the latest financial crisis from 2007-2009. Many studies focused on the potential reasons and predictors of the breakdown and were aimed at explaining the cross-country differences in the impact of the crisis on the real economy.

The severity of the crisis varies and largely depends on the level of economic and financial development of individual economies. These features largely weigh on the transmission channels of the crisis [Berkmen, Gelos, Rennhack, Walsh, 2009]. Many papers have focused on the relationship between financial openness and the severity of the crisis [Cetorrel, Goldberg, 2010], [Gianone, Lenza, Reichlin, 2010], [Lane, Milesi-Ferretti, 2010], [Rose, Spiegel, 2011]. The transmission of the crisis can be mitigated by the regulatory quality of the financial sector [Angkinand, 2009], [Gianone, Lenza, Reichlin, 2010].

Substantial attention has been given to the development of the financial crisis in EU countries and specifically to its two phases – the economic slowdown triggered by the global recession and the subsequent sovereign debt crisis. While papers focusing on the global extent of the downturn examine mainly financial openness and liberalization measures as predictors of the crisis, studies concerning EU countries concentrate on the sovereign debt crisis in the euro area. A broad strand of literature is concerned with the determinants of sovereign bond yield spreads in EU countries. These research papers point to macroeconomic fundamentals, international risk perception, domestic liquidity and sovereign risk as important factors driving the spreads [Barrios et al., 2009], [Manganbelli, Wolswijk, 2009]. Further papers investigate the changes of the determinants in the pre-crisis and crisis period [Haugh, Ollivaud, Turner, 2009], [Mody, 2009], [Hagen, Schuhknecht, Wolswijk, 2011]. The authors find that, while generally the main factors driving the spread did not change after the emergence of the crisis, the role of fiscal imbalances became far more significant.

Other authors look at the changes in contagion sources during the crisis [Caceres, Guzzo, Segoviano, 2010], [Arghyrou, Kontonikas, 2012]. They find that the origins of the contagion effects differ from one phase of the crisis to another. In the latter part of the crisis, instead of the surge in global risk aversion, country-specific market expectations started playing a major role as a determinant of sovereign bond spreads.

Some papers stress the importance of sovereign debt credit ratings as a determinant of bond risk premiums [Afonso, Furceri, Gomes, 2011], [Santis, 2012]. The results suggest that it is changes in ratings rather than the rating levels themselves that are the main factor determining sovereign bond spreads. The reactions of the spreads differ in euro- and non-euro-area countries.

A less extensive strand of literature focuses on the susceptibility of economies to the spillovers of the crisis. Grammaticos and Vermeulen [2012] analyze financial and non-financial stock market returns in euro-area countries. They find that small countries were isolated from the crisis, while larger countries experienced spillovers. After the collapse of Lehman Brothers, financial institutions became more vulnerable to the sovereign debt crisis transmission. Bengtsson [2012] focuses on the transmission process of the crisis from the money market to banks. He stresses the need of prudential regulation and supervision in order to control the influence of financial intermediaries and shadow banking on financial stability.

Georgopoulos, Papadogonas, Sfakianakis [2012] investigate the susceptibility to crisis of individual EU countries depending on inequality and poverty measures. They find a significant relationship between poverty/inequality indices and financial crisis indicators. Poorer countries performed worse during the crisis.

The cited papers point to a large extent of heterogeneity among EU countries during the latest financial crisis. Therefore, when investigating the propensity of EU countries to the crisis, it is essential to take into account the specific features of this group of economies. Since the main symptoms of the crisis in EU countries were the burst of the housing bubble and excessive public debt levels, this paper considers house price growth, private credit growth and public debt levels as basic factors determining the vulnerability of individual economies to the crisis. When taking into account countries under austerity programs, one cannot discover an obvious pattern concerning pre-crisis fiscal discipline or private credit availability<sup>1</sup>. Since the current political debate is concentrated on the role of EU banking regulation as well as on the resolution of the public debt crisis, the role of a common banking regulatory framework, and deposit insurance scheme unification, it becomes essential to analyze banking regulatory measures as potential factors influencing the vulnerability of economies to the crisis.

This paper focuses on the susceptibility of EU economies to the financial crisis depending on a large set of economic and regulatory factors. The paper attempts to contribute to the literature by investigating the role of a broad array of banking regulatory features in terms of how they influence the susceptibility of economies to the crisis.

This paper investigates the performance of 25 EU countries during the 2004-2009 period. The choice of the time sample is aimed at capturing the developments in the economic cycle preceding the crisis, which affected the performance of EU economies during the downturn of 2007-2009.

The paper is structured as follows: section two provides the data description; in section three the empirical specification is presented; section four deals with the estimation results; section five concludes.

---

<sup>1</sup> The countries under (potential) austerity programs are Greece, Spain, Portugal, Italy, Ireland, Romania, Hungary, and Latvia.

## Data description

The economic performance of countries during the crisis has been measured by an ample set of financial and real economy indicators [Georgopoulos, Papadogonas, Sfakianakis, 2012]. Conforming to the related strand of literature, this paper uses three performance measures. Following Angkinand [2009], the first dependent variable is the output gap during the investigated period. This indicator helps capture the propensity of the real economy to the crisis. Moreover, the study considers two financial performance measures based on Georgopoulos, Papadogonas, Sfakianakis [2012] – the yearly averages of the month-to-month government bond yield spreads and the yearly variance of these spreads. These indicators are aimed at seizing the credibility of individual economies from the point of view of the financial markets.

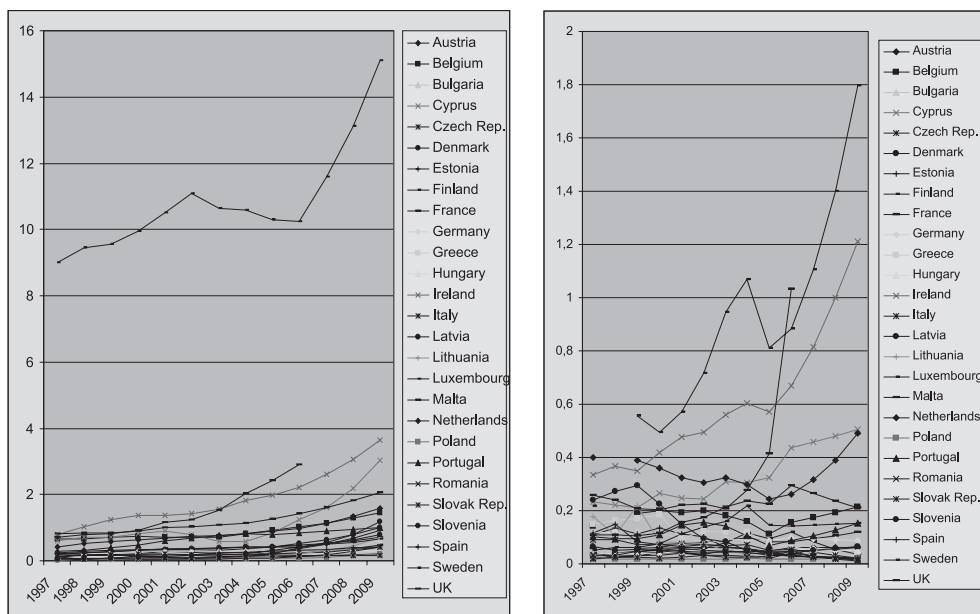
To investigate the importance of factors determining vulnerability to the crisis, the study takes into account several predictors of the crisis: the yearly house price growth, the public debt-to-GDP ratio, the ratio of private credit to GDP, the current-account balance-to-GDP ratio, and inflation levels. Moreover, measures of financial openness are included: international loans and offshore deposits. The data on house price growth is from the Bank for International Settlements, the data concerning macroeconomic variables from the OECD and the ECB, and the data on financial openness from the World Bank Financial Development and Structure Database.

To take into account the role of banking regulation and supervision, a broad set of measures computed on the basis of Barth, Caprio and Levine [2004] and the latest update of the World Bank Database [2008] is included. The latter encompasses indicators of: regulatory restrictions on bank activities and the mixing of banking and commerce, regulations on domestic and foreign bank entry, regulations on capital adequacy, deposit insurance system regulation, supervisory power, loan classification stringency, provisioning standards, and diversification guidelines, regulations fostering information disclosure and private-sector monitoring of banks and government ownership. As the database covers a broad array of regulatory features, it is possible to measure the influence of individual regulatory features and of banking regulation as a whole on the susceptibility of economies to the crisis. Following Barth, Caprio and Levine [2004], the first principal component versions of the indicators are used.

The graphs and table below present data concerning factors of vulnerability to the crisis.

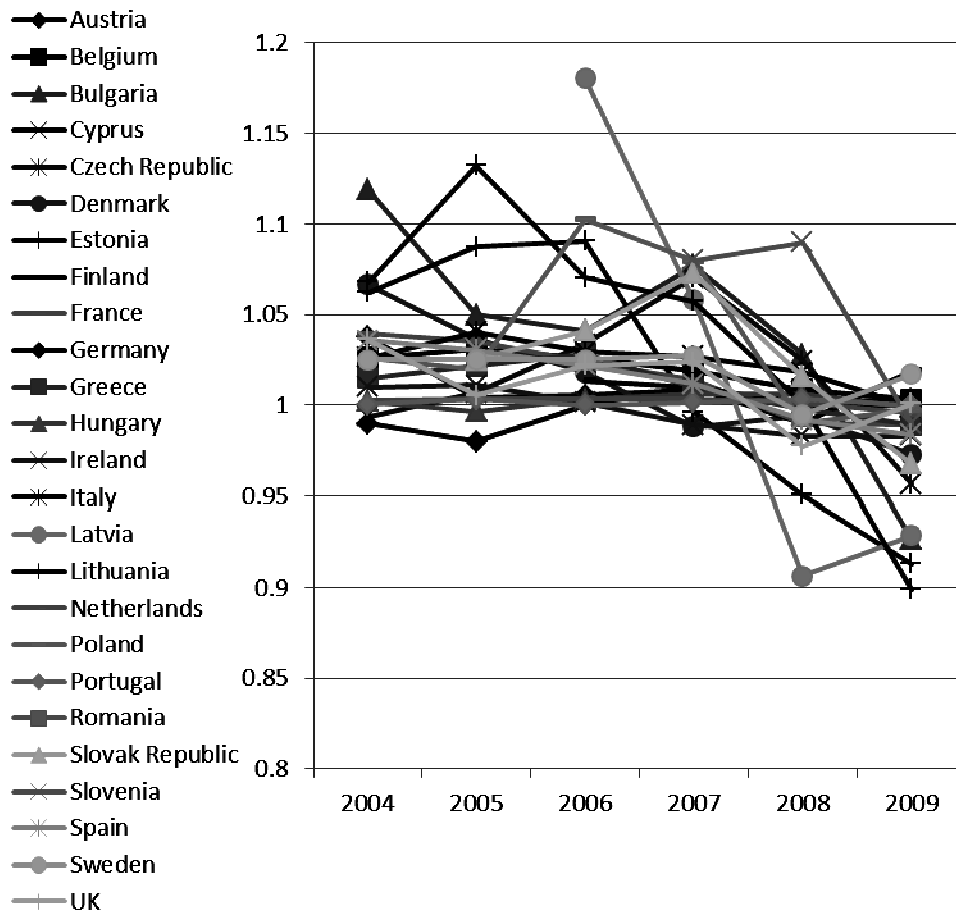
One can draw initial evidence from descriptive statistics. The level of international loans increased slowly in the majority of the countries. An extraordinarily strong increase is specific for Luxembourg, which also granted a larger absolute level of foreign loans than other EU countries. Large cross-country variations of data can be found when looking at the level of offshore deposits. Strong growth trends are characteristic for Luxembourg and Ireland, slower for Cyprus and Netherlands. In other EU countries, the level of offshore deposits varied irregularly during the sample period. In sum, the growing financial openness of EU economies may have constituted a factor that increased their vulnerability to the crisis.

**Figure 1**  
**International loans (lhs) and offshore deposits (rhs) amounts outstanding as % of GDP**



Source: World Bank

**Figure 2**  
House price growth rates (%)



Source: Bank for International Settlements

Housing prices showed various growth patterns among EU countries. The largest variation of growth rates can be observed in the Baltic states. There were gradual increases of growth rates in Spain and Ireland as well. Other EU countries experienced rather steady house price increases.

**Table 1**  
Banking regulation and supervision indicators

	Activity regulation	Entry regulation	Capital adequacy	Supervision	Private monitoring	Deposit insurance
Austria	7	8	5	13	7	1
Belgium	7	8	3	16	8	2
Bulgaria	10	8	7	12	8	0

continued Table 1

	Activity regulation	Entry regulation	Capital adequacy	Supervision	Private monitoring	Deposit insurance
Cyprus	11	3	7	15	8	0
Czech Republic	12	8	5	10	8	1
Denmark	9	8	5	10	8	1
Estonia	8	8	5	14	8	0
Finland	9	7	4	18	7	0
France	9	7	9	12	9	2
Germany	7	6	7	12	9	0
Greece	8	7	4	11	9	0
Hungary	11	8	8	16	9	2
Ireland	7	8	2	14	8	1
Italy	12	8	4	8	9	0
Latvia	8	8	6	12	8	2
Lithuania	11	8	3	17	8	1
Luxembourg	9	8	7	11	8	0
Malta	10	8	6	18	8	0
Netherlands	6	7	5	11	9	1
Poland	8	8	3	13	8	0
Portugal	12	7	8	14	8	0
Romania	11	7	6	14	7	1
Slovakia	10	8	4	14	6	0
Slovenia	10	8	6	14	8	2
Spain	7	7	9	17	10	2
Sweden	10	6	3	7	7	0
United Kingdom	4	8	6	13	9	0

Source: Author's computations based on Barth et al. [2004] and the World Bank Database on Banking Regulation and Supervision, updated 2008

Summary statistics indicate that there is a large variation of banking regulation and supervision among EU countries. Some countries impose no restrictions on bank activities related to real estate securities (e.g. Austria, Belgium, Germany, Ireland, and Spain). The least restrictive banking activity regulation is in the UK where banks can also engage in insurance activities without any restrictions. As far as entry conditions for new banks are concerned, the cross-country variation of regulatory features is smaller – the requirements are quite similar. The only exception is Cyprus where there are fewer restrictions imposed. Capital requirements differ largely among EU countries. All of the countries declare Basel compliance but there are differences in the definition of minimum capital adequacy (varying importance of market risk). The most stringent capital adequacy regulation is characteristic for Spain and France,

while the least restrictive for Ireland, Sweden, Poland and Belgium. The supervisory power regulations vary largely among EU countries as well. All countries grant similar rights to the supervisory agency to meet with external auditors to discuss their report without the approval of the bank and obligations for the auditors to communicate with the supervisory authority. Similarly, the disclosure of off-balance sheets is also common for all EU countries' regulations. Differences can be noted as far as the rights of the supervisors are concerned to: take legal action against external auditors for negligence; force a bank to change its internal organizational structure; order the bank's directors or management to constitute provisions to cover actual or potential losses; and suspend the directors' decision to distribute dividends, bonuses and management fees. Differences can be also observed in procedures concerning bank insolvency declaration, suspending ownership rights in problem banks and bank restructuring and reorganization. In sum, the most stringent regulations are applied in Malta, Lithuania and Spain, while the least restrictive in Sweden in Italy. Countries also differ in terms of private monitoring regulation. As far as audit requirements are concerned the regulations are similar, except in Slovakia and Italy, where the regulations are less stringent. There are large differences in rating practices and information disclosure to the public. The most stringent regulation concerning private monitoring is characteristic for Spain, while the least restrictive for Slovakia. There are also cross-country variations in deposit insurance schemes, especially concerning the rights of the deposit insurance agency to take legal action against violations.

The country sample encompasses EU countries with the exception of Luxembourg, which is an outlier, and Malta, due to data unavailability.

### Empirical specification

The empirical specification is based on dynamic panel regressions of the discussed indicators with the inclusion of interactive terms between house price growth and banking regulatory features as well as public debt levels and banking regulatory features. These interactive terms aim to capture whether banking regulation mitigated the influence of the main predictors of the crisis. The choice of a dynamic model makes it possible to consider the lagged influence of the predictors of the crisis on economic performance. Since the underlying data is yearly, it is economically reasonable to assume that financial openness, the ratio of private credit to GDP, and house price growth as well as other macroeconomic variables influenced economic performance after two periods. Hence the model includes two lags of the independent and dependent variables.

The model has the following form:

$$\begin{aligned}
 PER_{it} = & PER_{it-1} + PER_{it-2} + FO_{it} + FO_{it-1} + FO_{it-2} + HPGR_{it} + HPGR_{it-1} + \\
 & + HPGR_{it-2} + BR_{it} + MACRO_{it} + MACRO_{it-1} + MACRO_{it-2} + INTER_{it} + \\
 & + INTER_{it-1} + INTER_{it-2} + \eta_i + \mu_t + \varepsilon_{it}
 \end{aligned}$$



$PER_{it}$  stands for performance measures,  $FO_{it}$  for financial openness measures,  $HPGR_{it}$  for house price growth,  $BR_{it}$  for banking regulatory measures,  $MACRO_{it}$  for a set of macroeconomic variables, and  $INTER_{it}$  for interactive terms;  $\eta_i$  is the individual fixed effect,  $\mu_t$  is the time fixed effect, and  $\varepsilon_{it}$  is the error term.

Since the model is dynamic and also due to the endogeneity of the variables, the estimation technique is the system GMM estimator (Arellano-Bover and Blundell-Bond). The classification of the variables is as follows: exogenous variables are banking regulatory measures, interactive terms, public debt levels and the current-account balances. The level of inflation is treated as a predetermined variable since past levels of consumer prices shape expectations for the current price growth. The endogenous variables are the extent of foreign loans, the private credit-to-GDP ratio, and house price growth. In the case of the first two variables, their endogeneity results from economic theory and empirics. The endogeneity of finance and real economy outcomes has been discussed in a vast body of literature. House price growth is also treated as endogenous since the development of unstable credit booms during the analyzed period showed that excess demand significantly shaped the increase of house prices in the time preceding the latest financial crisis.

The choice of the instruments has been verified by means of the Sargan test.

## Results

The results are presented in Tables 2 and 3. The first set of regressions (1-3) is performed for the dependent variable output. Since some of the banking regulatory measures are correlated, they are included in separate regressions. The presentation of multiple regressions results is aimed at answering the question posed at the beginning of the article: How did the banking regulatory features influence the economic performance of individual countries?

**Table 2**  
Regression results for the dependent variable output gap

Dependent variable- output gap	1	2	3
Output gap <sub>t-1</sub>	1.142157***	1.130827***	1.299868***
Output gap <sub>t-2</sub>	-1.251559***	-1.581719***	-1.386944***
Foreign loans	-24.35792	-41.60506	19.64522
Foreign loans <sub>t-1</sub>	43.96036	62.89218	-41.94786
Foreign loans <sub>t-2</sub>	-23.47051	-22.81959	21.60697
Overall banking regulation	-17.66046		
Entry into banking	43.14923		
Banking activity			-1.133023
Deposit insurance			-28.85023**
Supervision	9.866679		

continued Table 2

Dependent variable- output gap	1	2	3
Private monitoring	28.23335		
Private monitoring	28.23335		
Banking concentration	0.730971		
Government-owned banks ratio		-23.2859*	
Public debt	-0.0534082	0.0524748	0.0165688
House price growth	10.68137	-0.7991449	12.39297
House price growth <sub>t-1</sub>	3.340104	6.672133	-3.919975
House price growth <sub>t-2</sub>	-5.91297***	-4.832843**	-7.585379***
House price growth*banking regulation	7.385707	1.023344	-0.1232241
Public debt*banking regulation	0.0253482	-0.0007574	0.0227089
Inflation	0.2113345	0.3903887	0.193647
Inflation <sub>t-1</sub>	0.0651089	0.1272721	-0.1114588
Inflation <sub>t-2</sub>	-1.07593**	-0.7732462**	-0.3961887
Private credit to GDP	-0.055243	0.0747174	0.0112678
Private credit to GDP <sub>t-1</sub>	0.0896593	0.0696417	0.0340578
Private credit to GDP <sub>t-2</sub>	-0.0446741	-0.1385715	-0.0559341
Current account	0.0557575	0.1981766	-0.0985437
Sargan test	Prob > chi2 = 0.9856	Prob > chi2 = 0.9625	Prob > chi2 = 0.9018

Source: author's computations

The results indicate that house prices growth influenced output significantly and negatively. The fact that only the second lag of house price growth is significant may point to a mechanism of unstable credit booms whereby initially growing house prices tend to fuel economic expansion but eventually lead to a bust on the housing market and economic downturn. One can also glean from the table that overall banking regulation was irrelevant for output changes although one can observe a significant impact of the stringency of deposit insurance schemes on economic performance. The sign of the parameter is negative, which indicates that the higher the stringency of deposit insurance the lower the output gap. The ratio of government-owned banks also influenced output significantly and negatively. As expected, one can observe a significant negative impact of the lagged consumer price growth on current output. Surprisingly, one could not observe any significant impact of financial openness measures, public debt levels or of the current-account balance on the susceptibility of economies to the crisis.

The coefficients of the interaction terms show that banking regulation may change the negative influence of house price growth. The impact of the term is positive yet insignificant in two of the three regressions.

Table 3 presents the estimates of the regressions for the dependent variables: long-term interest rate spreads and their variance. As in regressions 1-3, the regressions include non-correlated banking regulatory indices and features.

**Table 3**  
**Regression results for the dependent variables: long-term interest rate spreads and variance**

	Dependent variable – long-term interest rate spreads	Dependent variable – long-term interest rate spreads	Dependent variable – long-term interest rate spread variance
Interest rate spreads <sub>t-1</sub>	-0.7019281	-0.8348698**	
Interest rate spreads <sub>t-2</sub>	-1.362454*	-1.201148*	
Interest rate spread variance <sub>t-1</sub>			-0.0578449
Interest rate spread variance <sub>t-2</sub>			0.0008227
Foreign loans	5.306746*	3.178009*	-3.948121
Foreign loans <sub>t-1</sub>	-12.06239**	-8.235355**	6.11036
Foreign loans <sub>t-2</sub>	6.744983**	5.454793**	-1.119944
Overall banking regulation	0.5434637	0.4269249*	0.8700974
Entry into banking	-8.052208		
Supervision	0.0685454		
Private monitoring	1.489077		
Banking concentration	0.3548306		-2.234488
Government-owned banks ratio		1.338369	
Public debt	0.001646	-0.0021765	-0.0038873
House price growth	-0.7641809	-0.4969469	0.0039048
House price growth <sub>t-1</sub>	0.1418029	0.0663025	0.3812137
House price growth <sub>t-2</sub>	0.0432779	0.0288032	0.1513213
House price growth*banking regulation	-0.5319654	-0.3659852*	0.5479829
Public debt*banking regulation	-0.0010976	-0.0007506	-0.0005506
Inflation	0.0237087	0.0292089***	0.0934108***
Inflation <sub>t-1</sub>	0.0099021	0.0198765	0.087636
Inflation <sub>t-2</sub>	0.0094484	0.0130167	0.191256***
Private credit to GDP	-0.0000783	0.004591	-0.0062122
Private credit to GDP <sub>t-1</sub>	0.0078657	0.0049796	0.0093104
Private credit to GDP <sub>t-2</sub>	-0.0074538	-0.0089885	-0.0005846
Current account	-0.010946	-0.002594	0.0410792
Sargan test	Prob > chi2 = 0.9964	Prob > chi2 = 0.9599	Prob > chi2 = 0.1911

Source: Author's computations

The results show that the extent of foreign loans and inflation were significant factors driving long-term interest rate monthly spreads. As far as foreign loans are concerned, their positive impact on interest rate spreads was neutralized by the negative impact of their first lag but the impact of the second lag was positive again. A surprising result is the significant positive effect of overall banking regulation on the spreads. The more stringent the banking regulation the larger the long-term interest rate monthly spreads. The coefficients of the interaction terms between house price growth and banking regulatory features show that stringent banking regulation helped mitigate the negative influence of house price growth on spreads – the coefficient is negative and significant. Public debt levels seemed not to matter for the monthly interest rate spreads.

The significance of the variables differs when regressing them on the variance of the yields instead of spreads. The only significant factor driving the variance was the increase of consumer prices. There is no significant nexus between the variance of the yields, on the one hand, and public debt levels and house price growth, on the other. No significant results have been obtained for the role of banking regulatory measures and features as well as their interaction terms.

An additional issue that has to be considered when analyzing the results is that the data also comprises the pre-crisis economic performance of EU countries. Therefore it is essential to compute time-specific effects to identify the impact of the financial crisis on the examined indicators. The time effects are presented in Table 4.

**Table 4**  
**Time fixed effects**

Year	Output	Yield spread	Yield variance
2005	0.6471195	0.01116	-6.492955*
2006	2.506492***	0.078083***	-5.47272
2007	4.084434***	0.0584673**	-4.233443
2008	2.832582***	0.0140536	0.6524024
2009	-2.44634**	0.0100335	-7.961503

Source: Author's computations

One can glean from the table that, in the case of output regressions, time effects were significant for almost the whole sample. The years 2006-2008 had positive effects, while 2009 had significantly negative effects. The results also suggest that the interest rate spreads tended to be larger in 2006 and 2007. As far as the yield variance regressions are concerned, the only significant time effect can be observed for 2005. In a nutshell, the effects of the crisis on economic performance were visible only in the output regressions.

## Conclusions

The study provides some new evidence on the role of banking regulation and on how it has influenced the economic performance of EU countries during the latest financial crisis. One key factor that influenced output significantly and negatively during the analyzed period was house price growth. The study considers several banking regulatory measures as factors mitigating the crisis. The results indicate that, although overall banking regulation was irrelevant for output changes, one can observe a significant influence of the stringency of deposit insurance schemes on the susceptibility of economies to the crisis. More stringent deposit insurance standards contributed to decreased output gaps. This may mean that, to an extent, banking regulation helped fight unstable credit booms.

An interesting result is the significant negative impact of the ratio of government-owned banks on output. This outcome may show that more stringent supervision over banking systems with high government involvement is conducive to greater ability to prevent unstable credit expansion. Another conclusion is that banking regulation may mitigate the negative influence of house price growth.

The extent of foreign loans and inflation were the main factors driving monthly spreads in long-term interest rates. A surprising result is the significant positive effect of overall banking regulation on the spreads. The more stringent the banking regulation the larger the long-term interest rate monthly spreads. On the other hand, the results show that stringent banking regulation helps mitigate the negative influence of house price growth on spreads.

A further conclusion is that the only significant factor driving the interest rate spread variance was the increase of consumer prices. There are no significant relationships between the variance of the yields and public debt levels, house price growth and banking regulation.

Contrary to the results obtained in papers investigating global samples, one could only observe a partially significant impact of financial openness measures on the susceptibility of EU countries to crisis. The difference in the obtained results may be due to the fact that the EU is largely a homogenous group of countries that differs less in terms of financial depth or financial openness than global samples.

The impact of the financial crisis of 2007-2009 on the performance of EU countries is reflected by significant negative time effects. The results of the study suggest that the main factor driving the varied vulnerability of EU countries to the crisis was their ability to avoid or mitigate expansionary credit booms and busts. The main policy conclusion that emerges from the performed analysis is that EU countries could strengthen their resilience to crises by introducing more stringent regulation and supervision of various aspects of banking activity.

The topic surely needs further research. A useful extension of the analysis performed in this paper would be a banking-sector micro-level data investigation,

which could show how banks in individual EU countries have performed during the latest financial crisis.

## Bibliography

- Afonso A., Furceri G., Gomes P., [2011], *Sovereign credit ratings and financial market linkages. Application to European data*, ECB Working Papers No. 1347.
- Angkinand A., [2009], *Banking regulation and the output cost of banking crises*, „International Financial Markets, Institutions and Money”, Vol. 19, Issue 2.
- Arghyrou M., Kontonikas A., [2012], *The EMU sovereign-debt crisis: fundamentals, expectations and contagion*, „Journal of International Financial Markets, Institutions & Money”, Vol. 22, pp. 658-677.
- Barrios S., Iversen P., Lewandowska M., Setzer R., [2009], *Determinants of intra-euro area government bond spreads during the financial crisis*, „European Economy,” Economic Papers No. 338.
- Barth J., Caprio G., Levine R., [2004], *Bank regulation and supervision: what works best?*, „Journal of Financial Intermediation”, Vol. 13.
- Bengtsson E., [2012], *Shadow banking and financial stability: European money market funds in the global financial crisis*, forthcoming in the „Journal of International Money and Finance”.
- Berkmen P., Gelos G., Rennhack R., Walsh J., [2009], *The Global Financial Crisis: Explaining Cross-Country Differences in the Output Impact*, IMF Working Paper 09/280.
- Caceres C., Guzzo V., Segoviano M., [2010], *Sovereign Spreads: Global Risk Aversion, Contagion or Fundamentals?*, IMF Working Paper No. 120.
- Cetorrelli N., Goldberg L., [2010], *Global Banks and International Shock Transmission: Evidence from the Crisis*, „IMF Economic Review”, Vol. 59(1).
- Georgopoulos D., Papadogonas T., Sfakianakis G., [2012], *Factors related to the depth of the latest crisis for EU-27 countries: The key role of relative inequality/poverty*, „Economics Letters”, Vol. 116, pp. 308-311.
- Gianone D., Lenza M., Reichlin L., [2010], *Market Freedom and the Global Recession*, ECARES Working Paper No. 20.
- Grammaticos T., Vermeulen R., [2012], *Transmission of the financial and sovereign debt crises to the EMU: Stock prices, CDS spreads and exchange rates*, „Journal of International Money and Finance”, Vol. 31, pp. 517-533.
- Hagen J., Schuhknecht L., Wolswijk G., [2011], *Government bond risk premiums in the EU revisited: The impact of the financial crisis*, „European Journal of Political Economy”, Vol. 27, pp. 36-43.
- Haugh D., Ollivaud P., Turner D., [2009], *What Drives Sovereign Risk Premiums?*, OECD Economics Department Working Papers No. 718.
- Lane P., Milesi-Fereti G., [2010], *The cross-country incidence of the Global Crisis*, „IMF Economic Review,” Vol. 59(1).
- Manganelli S., Wolswijk G., [2009], *What drives spreads in the euro area government bond market?*, Economic Policy 24 (58), 191-240.
- Mody A., [2009], *From Bear Stearns to Anglo Irish: How Eurozone Sovereign Spreads Related to Financial Sector Vulnerability*, IMF Working Papers No.108.
- Roodman D., [2009], *A Note on the Theme of Too Many Instruments*, „Oxford Bulletin of Economics and Statistics”, Vol. 71(1), pp. 135-158.
- Rose A., Spiegel M., [2011], *Cross-Country Causes and Consequences of the Crisis: An Update*, „European Economic Review”, Vol. 55 (3).
- De Santis R., [2012], *European sovereign debt crisis. Safe haven, credit rating agencies and the spread of the fever from Greece, Ireland and Portugal*, ECB Working Paper No. 1419.

---

## **ROLA REGULACJI SEKTORA BANKOWEGO W KSZTAŁTOWANIU WYNIKÓW GOSPODARCZYCH PAŃSTW UE W CZASIE KRYZYSU FINANSOWEGO Z LAT 2007-2009**

### Streszczenie

Celem artykułu jest zbadanie wpływu poszczególnych form regulacji bankowych na podatność gospodarek krajów UE na kryzys finansowy z lat 2007-2009. Podążając za nurtem literatury zgłębiającą tę tematykę, podatność na kryzys zmierzono za pomocą luki produktowej oraz miesięcznych spreadów długoterminowych stóp procentowych jak i ich wariacji. Za główne czynniki kształtujące podatność na kryzys przyjmuje się wzrost cen nieruchomości, poziom długu publicznego, integrację rynku finansowego w skali międzynarodowej oraz wielkość kredytów w sektorze prywatnym.

Metodą badawczą w niniejszym opracowaniu jest ekonometryczna analiza danych panelowych. Do oszacowania badanych relacji wykorzystano estymator systemowy GMM. Do regresji włączono zmienne będące podstawowymi czynnikami kształtującymi podatność na kryzys oraz obszerny zestaw mierników regulacji bankowych. Ponadto uwzględniono zmienne interakcji pomiędzy miernikami regulacji bankowych i głównymi czynnikami kształtującymi podatność na kryzys celem zbadania krańcowego wpływu wskazanych regulacji na oddziaływanie głównych czynników wywołujących kryzys.

W badaniu uwzględniono 25 krajów UE. Horyzont czasowy badania obejmuje lata 2004-2009 celem uchwycenia tendencji rozwojowych w gospodarkach analizowanych krajów w cyklu koniunkturalnym poprzedzającym kryzys. Tendencje te w znaczący sposób ukształtowały podatność poszczególnych krajów UE na kryzys w latach 2007-2009. Celem uchwycenia badanych relacji w okresie samego kryzysu obliczono stałe efekty czasowe.

Wyniki wskazują na istotną rolę poszczególnych form regulacji bankowych w kształtowaniu odporności gospodarek krajów UE na kryzys oraz na łagodzący wpływ wskazanych regulacji na oddziaływanie czynników wywołujących kryzys.

**Słowa kluczowe:** regulacje bankowe, boom na rynku nieruchomości, kryzys finansowy

**Kody JEL:** F36, G15, G28

---