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## Social capital and banking system profitability: A survey of European Union countries

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**Abstract:** Over the last years, the concept of social capital as a facilitator of economic activities has been a remarkable issue among economists. In this article, we study the impact of social capital on banking performance focusing on profitability in the European Union for period 2008-2016. Social capital indicators are applied in the model are "trust in others" and "fair behavior of others". We expect more profitable banks in societies with higher levels of social capital. According to the type of data, we apply GMM estimator to do more efficient estimations. We use auxiliary variables such as bank asset, capital adequacy, real interest rate, the cost to income ratio as micro variables, GDP and inflation are employed as macros. Our estimations point at a rejection of the main hypothesis. Opportunistic behavior and less social trust result in more profits for European countries. We justify the results in two ways. First, due to the 2008 financial crisis, trust to all institutions has decreased in European countries. The second reason concerns countries with low levels of social capital. The decrease of trust for the banking system is lower than for other institutions. Therefore, that sector may benefit in such circumstances.

**Keywords.** Social capital, Banking profitability, European Union, Generalized Method of Moments

**JEL Codes.** A13, G19, G21

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### 1. Introduction

Hanifan introduced the notion of social capital in 1916, but it was not until the early 1990s that economists took a serious interest in this concept. There is still no broad consensus on the definition of social capital, (Cassar, Crowley and Wydick, 2007), but Coleman (1988) has defined it as "All social relations and social structure facilitate some forms of social capital; actors establish relations purposefully and continue them when they continue to provide benefits"(p.105). Elsewhere, social capital has been defined as "social networks/relations, and the norms and values that are generated, accumulated and spread through these networks" (Westlund & Adam, 2010). Woolcock (1998) defines social capital as "the information, trust, and norms of reciprocity inhering in one's social networks".

Putnam (1993), who is one of the major contributors to the literature of social capital, has reported a correlation between electoral participation and the quality of government in Italy. The economic implications of social capital have been extensively researched, and many studies have confirmed the existence of such implications. (Glaeser, Libson & Sacerdote, 2002).

According to Knack and Keefer (1997), social capital has indeed a significant impact on the performance of the economy. In recent years, the economic impacts of social capital have been explored in greater detail. But some believe that social capital-related literature is still underdeveloped and can be compared, in terms of maturity, to the 1960s literature on human capital (Grootaert & van Bastelaar, 2002). Others believe that the research into social capital should undergo a shift from the pre-paradigm to the paradigm phase (Fulkerson & Thompson, 2008). Therefore, social capital has different effects such as economic, behavioral, and institutional effects. However, economic consequences are the focus of this paper.

Some commentators have defined social capital as a network of social relations that affect individual behavior and thereby economic growth (Penner & Mueller, 1997). The impact of social capital in various economic areas has also been extensively researched. For example, there is a considerable body of literature regarding the role of social capital in the area of economic growth (Zak & Knack, 2001; Lye, Kitson & Toh, 2005; Akomak & Weel, 2009), labor productivity (Uphoff & Wijayarathna, 2000; Hall & Jones, 1997), and development of financial systems (Ongena & Smith, 2000; Guiso, Sapienza & Zingales 2004).

By surveying the literature of social capital, the concept can be categorized into three approaches (Membiela-Pollan & Pena-Lopez, 2017):

1. Micro-social perspective that focuses on the individual as a core and his relations with others to gain benefits (Bourdieu, 1986; Lin, 2001)
2. Meso-social perspective or communitarian. Its focus is on community and the benefits from a group rather than individuality (Bowels & Gintis, 2002; Fukuyama, 1997)
3. Macro-social and macro-institutional perspective: The focal center in this perspective is the entire social and economic network as a whole. Some social beliefs and behaviors are so important in this perspective such as social trust, opportunistic behavior and civic-mindedness. (Putnam, 1993, Inglehart, 1997; Guiso et al., 2004)

Some social capital indices such as trust to other people and less financial opportunistic behavior can facilitate financial connections and decrease transactional costs and improve social performance (Putnam, 1993; Dasgupta, 2005; Wolleb, 2008). Guiso, Sapienza and Zinalas (2011), consider social capital as a result of social networks and shared common beliefs that assist cooperation in a society. In this article, the Macro-social aspect of social capital in terms of common norms is considered.

From the above, it can be inferred that social capital has an undeniable impact on the economy. Banks, as integral components of the economy, are no exception in this regard. Therefore, social capital can affect debt holders' perception about borrowers that they behave less opportunistically in a high social capital level environment. It can be seen that banks insist less on collateral requirements in the lending process when the firms as borrowers work in an environment with higher levels of social capital and by reducing the number of covenants can decrease transactional costs (Hasan, Hoi, Wu & Zhang (2017).

In this paper, we examine the impact of social capital on the performance of banks within the boundaries of the European Union as a relatively homogeneous society. In the next section of this paper, we will review the existing works and theories regarding the subject. In the third section, the employed data and methodology will be described. In the fourth section, the modelling and results will be discussed. And in the fifth section, we will summarize the results and present the conclusions. The hypothesis of this research is the existence of a significant positive relationship between social capital and the profitability of banks.

## **2. Social capital and banks**

According to Jin, Kanagaretnam, and Lobo (2015), in the countries that enjoy a level degree of social capital, financial reports of banks tend to have enhanced accounting transparency, and their commitment to honor obligations and preserve mutual trust prevent them from self-serving actions such as window dressing. In contrast, in the countries where social capital is low, financial reporting is less transparent and bank failures are more common. Hence, it can be concluded that social capital has a significant impact on the performance of the banking system.

In a study conducted by Xie (2013) on the impact of social capital on the banks' risk-taking behavior, positive and negative effects of social capital and its relationship with the emergence of non-performing loans were examined. The positive effect of social capital is that ethical principles encourage borrowers to honor the terms of the loan contract and repay the debt. However, the negative effect is that the same premise gives banks a false sense of confidence regarding how borrowers return the money. The abuse of this trust may also undermine the same principles upon which the trust is founded. In other words, opportunists may take advantage of a trusting community to borrow money and then refuse to honor their commitment, ultimately creating a sense of distrust. In conclusion, this study reported that the higher is the social capital of a country, the more stable are its banks.

Talavera, Xiong, and Xiong (2012) examined the association of social capital with access to bank financing. After conducting a survey on Chinese companies and banks, they concluded that in the countries like China where financial market is dominated by state-owned banks, maintaining a high level of social capital is essential for ensuring that companies and entrepreneurs have fair access to financial resources. They stated that membership in business associations, participation in charitable activities, and membership in the Chinese communist party are notable examples of the social capital enhancing factors that may improve the private sector's access to financial resources.

One of the comprehensive studies regarding the relationship of social capital with banks is the research conducted by Pastor and Tortosa-Ausina (2008). According to this research, social capital can affect the bank performance in five ways: (i) by reducing information, transaction, and monitoring costs, (ii) by reducing risk premium, and therefore lowering financial and credit costs, (iii) by reducing loan losses, (iv) by increasing loan supply and reducing loan rationing, and finally (v) by encouraging customers to use bank products. This study argued that "the most direct impact of social capital on banks is through the increase in the confidence and trust of the

individuals participating in different banking relationships in the institutions and systems that control the social, economic and political welfare of the society”.

In a study by Cassar, Crowley and Wydick (2007), it was stated that social capital, when defined as the personal trust between individuals and social cohesion between different groups, has a significant positive effect on the borrowers’ repayment performance; but when defined as a simple familiarity between individuals or an individual’s general trust in society, it has little impact on the borrowers’ performance. From this study, it can be concluded that high social capital has an impact on the repayment of loans, and can, therefore, reduce the default rate and increase banking profitability. A similar conclusion can also be made about the effect of social capital on the banking risk.

In a study carried out by Guiso et al., (2004) on the role of social capital in financial development in Italy, it was concluded that in the areas that enjoy a higher level of social capital, households are more likely to use banking services and invest in stocks, and have better access to formal finance. This research found that social capital was stronger wherever the law was weaker and had a greater impact on less educated people. These results indicated that in the study area, informal relationships had replaced the official law.

Several studies including Elyasiani and Goldberg (2004), Ferri and Messori (2000) have suggested that higher social capital allows banks to lend more easily, thus increasing the loan supply.

Some studies including Dowla (2006), Van Bastelaer (1999), and Quinones and Seibel (2000) have stressed the important role of banks in creating social capital. In a case study on Bangladesh’s Grameen Bank, Dowla (2006) examined the impact of microfinancing services provided by this bank on the social capital. In this study, it was stated that Grameen Bank has promoted social capital of Bangladeshi community by creating trust, norms, and networks. To be more precise, the founders of Grameen Bank suggested that it is possible to create trust by forming an institutional incentive structure. In response, customers returned this trust by repaying the loans on time, and this cycle created social capital in the form of trust. Furthermore, the emphasis of Grameen Bank on transparency in financial transactions, credit discipline, and timely repayment turned creditworthiness into a social norm; a contribution that greatly simplified the work of the descendants of this bank. This bank also improved the social capital of Bangladeshi society by creating horizontal and vertical networks.

In a study conducted by Mayoux (2001), the role of microfinancing in creating social capital was investigated in Cameroon. According to this study, microfinancing not only increases social capital but also empowers women. In a similar study, Anderson, Locker, and Nugent (2002) stated that microfinancing programs can improve social and human capital by transforming the household’s production and consumption behavior with further focus on women, by encouraging group work, and by enhancing the people’s decision-making and risk-taking capability in regard to lending and borrowing. Sanyal (2009) also drew a similar conclusion in regard to the effect of microfinancing on women’s social capital.

The above-reviewed body of literature indicates that there is a mutual relationship between

social capital and the performance of banks. Indeed, banks can improve the social capital of a society by means of financing and credit facilities. But the present study is focused on the impact of social capital on the performance of banks, and more specifically their profitability. From the existing literature about the effect of social capital on the performance of banks, the following can be inferred:

1. In a society with a higher level of social capital, information transparency improves banking profitability by reducing the costs of customer identification, collateral registration, and data verification.
2. A higher level of social capital results in banks and customers showing more commitment to the terms of contracts.
3. In a society with a higher level of social capital, people are more likely to use banking and financial services.

In general, the existing literature leads us to the hypothesis that higher social capital helps banks earn more profit. In this paper, we test this hypothesis by examining the effect of social capital on the profitability of the banks in the European Union countries.

### **3. Methodology and Data**

#### *3.1. Methodology*

This study was conducted using the generalized method of moments (GMM). Since our data were of panel type, they could be processed using the static panel models. But the static method cannot properly deal with serial correlation, heteroscedasticity, and endogeneity of explanatory variables. Thus, we chose to use the GMM estimator to avoid these issues. In comparison, the Two-Stage Least Squares 2SLS estimators are weaker from several perspectives. Also, the typical instrumental variables (IV) estimators are ineffective in dealing with heteroscedasticity. The reasons for the use of GMM technique for the estimation of panel data can be summarized as follows:

- The dynamic panel data GMM is well-suited for the cases where the number of cross-sectional variables (N) exceeds the number of time periods (T), and has been developed to control the dynamic panel bias in such circumstances (Bond & Baltagi, 2008). The reason to choose GMM is because of the point that is mentioned: bigger N than T. in the sample: T=9 and N=23.
- In dynamic panel data models, the endogeneity problem has been resolved by using the model variables as instrumental variables. In this method of estimation, any regression variable that is not correlated with the error term (including lagged and difference variables) can potentially be an instrumental variable (Greene, 2008).
- Unlike 2SLS estimators, this method can properly address the collinearity problem. In the dynamic GMM method, lagged differences and levels of variables are used as instrumental variables, so they are expected to be more orthogonal with respect to other variables. Hence, the collinearity problem is partly resolved (Hsiao, 2003).

There are two methods of estimation with dynamic panel GMM. The principles of the dynamic GMM models were first introduced by Arellano and Bond (1991), who formulated an estimator called first-difference GMM (DGMM) accordingly. Later, Arellano and Bover (1995), Blundell and Bond (1998) introduced some changes to the DGMM formulations and developed the system GMM (SGMM). The difference between these two methods is in the way individual effects are incorporated into the model. While the Arellano-Bond method uses the differencing, the Arellano-Bover method utilizes the orthogonal deviation. In the Arellano-Bond method, the entire set of lags are used as instrumental variables, but in the SGMM method, only the lagged levels are used for this purpose. While being less renowned than the Arellano-Bond method, SGMM has a set of merits that make it preferable. The notable advantages of SGMM over DGMM include higher accuracy and lower sample size bias, which lead to relatively more efficient estimations (Baltagi, 2008). We used two tests to make sure that the method is well-suited for model estimation. The first test was the Hansen's J-test, which checks the validity of the overidentifying restrictions (i.e. the validity of instrumental variables). According to Baum (2006), Hansen's J-test is the leading tool for assessing the suitability of a GMM model for an estimation. The second test was the test of first-order and second-order serial correlation of residuals (AR1 and AR2), which also checks the validity of instrumental variables. According to Arellano and Bond (1991), in the GMM estimation, error terms must have a first-order serial correlation (AR1) but not a second-order serial correlation (AR2). Here, the rejection of the null hypothesis means that the lags of dependent variables are endogenous, hence the condition stated in the equation is rejected.

### 3.2. Data

Analyses were performed on the data pertaining to 23<sup>1</sup> EU countries for the period 2008-2016. The data were collected from the reports of the European Central Bank (ECB) and other available resources (see Table 1).

**Table1.** Data Resources

Category	Variable	Data source
<b>Banking</b>	Return On Average Assets	European Central Bank (ECB)
	Capital Adequacy Ratio	
	Real Interest Rate	
	Asset	
	Cost-to-Income Ratio	
<b>Macroeconomic</b>	Gross Domestic Product	Eurostat - European Commission
	Inflation	
<b>Macro-social</b>	Trust in Others	European Social Survey(ESS)
	Opportunistic Behavior	

The following is a description of the variables used in the analysis.

<sup>1</sup> Because of some data gaps, Croatia, Greece, Latvia, Malta and Romania are excluded.

### 3.2.1. Dependent variables

Return On Average Assets (ROAA): This rate was obtained by dividing the bank's net profit by the value of its assets.

### 3.2.2. Independent variables

#### *Internal bank variables*

These are the variables that influence the profitability of a bank depending on its capability and performance. These variables were derived from the related literature:

A. Capital Adequacy Ratio (CAR): This ratio was calculated by dividing the bank's capital by its risk-weighted assets. Many researchers including Olalekan and Adeyinka (2013), Mathuva (2009), Blum (1998), Alper and Anbar (2011), and Kosmidou (2008) have proven the existence of a relationship between capital adequacy and bank profitability. In our model, this variable is expressed in percentage.

B. Real Interest Rate (RIR): This is the interest rate after adjustment with respect to the inflation rate. A high RIR reduces the demand for loan but instead increases the income earned from each loan. The effect RIR on bank profitability has been studied by Abreu and Mendes (2001), Vong and Chon (2006), Bennaceur and Goaid (2008), Demiguc-Kunt and Huizinga (1999), Albertazzi and Gambacorta (2009).

C. Cost-to-Income Ratio (CIR): This ratio shows how efficient the bank expenditures are, and how much they result in a profit. Naturally, efficient expenditure can be expected to increase the bank's profitability. Many works including Olson and Zoubi (2011) and Ariff and Luc (2008) have studied the association of CIR with profitability. Many other papers such as Pasiouras and Kosmidou (2007), Francis (2013) and Hassan and Bashir (2005) have confirmed that this ratio strongly influences the bank's profitability.

D. Bank Size (LNASSET): The size of a bank, which is represented by the size of its assets, is one of the variables that affect its profitability. The impact of bank size on its profitability has been confirmed in many studies including Athanasoglou, Brissimis & Delis (2005), Gul, Irshad and Zaman (2011), Dietrich and Wanzenried (2011), Sufian and Razali Chong (2008), and Vong and Si Chan (2006). In our model, the logarithmic form of this variable was used.

#### *Macroeconomic variables*

The performance of a bank as an integral part of a country's economic system is certainly affected by the macroeconomic conditions of that country. The effects of macroeconomic variables such as employment, GDP growth, and inflation on the performance of banking systems have been explored and emphasized in many studies.

A. Gross Domestic Product (LNGDP): In our model, the logarithmic form of the gross domestic product (GDP) was used as a measure of the economic growth of countries. The impact of this macroeconomic variable on the profitability of the banks has been investigated by many researchers including Albertazzi and Gambacorta (2010), Bashir (2003), Goddard, Molyneux, Wilson (2004), Sufian and Chong (2008), Tan and Floros (2012), Aburime (2008).

B. Inflation (INF): Inflation is widely regarded among the most important determinants of economic activities. Notable works on the effect of inflation on the performance of banks include the studies of Boyd, Levin and Smith (2001), Ali, Akhtar and Ahmed (2011), Santoni (1986), Tan and Folors (2012).

*Main variables: Social Capital Indicators*

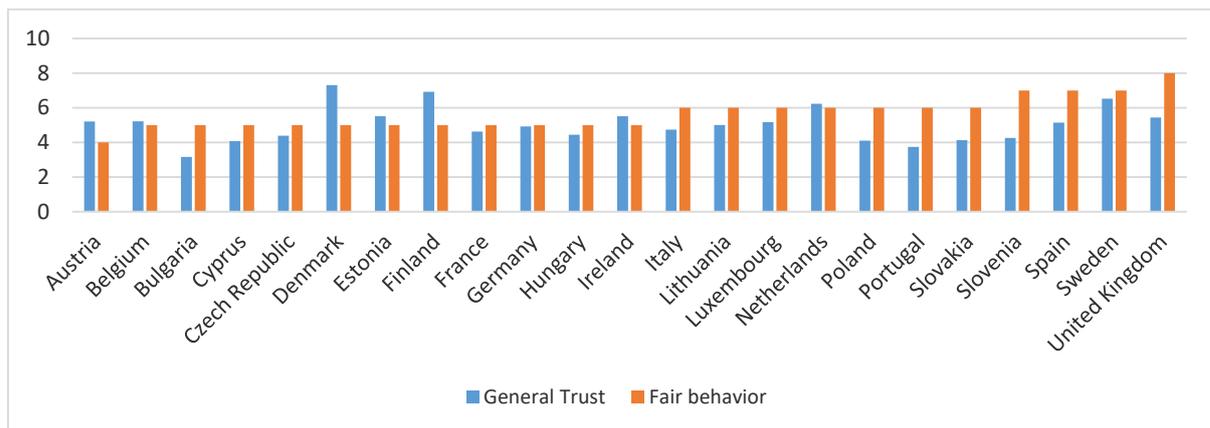
The aim of the study was to investigate the impact of social capital on the profitability of the banks. As it is discussed in the introduction, Because of the definition of social capital that is adopted in the article, I used the European Social Survey (ESS)<sup>2</sup> results to measure social capital through two variables. The first is social trust and the second is the perception of opportunistic behavior in others. ESS has collected the answers through questionnaires by asking two questions as table 2 in a Likert scale with an 11-point scale that offers a range of answer options between 0-10.

**Table 2.** Questions to Measure Social Capital by ESS

Question	Likert Scale		Indicator of	Abbreviation
	0	10		
Most people can be trusted or you can't be too careful	You can't be so careful	Most people can be trusted	General Trust	GT
Most people try to take advantage of you or try to be fair	Most people try to take advantage of me	Most people try to be fair	Opportunistic /Fair Behavior	FB

By studying the answers of questions above, we can see the social capital level in European countries as shown in diagram 1.

**Diagram 1.** Median of Social Capital Indicators by Country



Source: Author's calculations from ESS.

As can be seen in Diagram 1, social capital indicators are at high levels in Scandinavian countries such as Denmark, Finland and Sweden. On the contrary, some eastern and southern European countries such as Bulgaria, Portugal Czech Republic and Cyprus are not at a

<sup>2</sup>The surveys are done in 8 rounds from 2002 to 2016.

desirable level of social capital.

In the model, we apply the percentage of optimists as a representative of social capital in two aspects: general trust and fair behavior. The hypothesis is that banking profitability increases with social capital.

#### 4. Results

This section presents the results obtained by model estimation based on the described data. The results regarding the effect of social capital on the profitability of EU banks are presented in Table 3.

**Table 3.** GMM Model Results

Independent Variables	Model (1)-General Trust Dependent Variable:ROAA	Model (2)- Fair Behavior Dependent Variable:ROAA
GT	-1.23***	-
FB	-	-0.31*
L1	0.11***	0.12***
CAR	0.49***	0.54***
RIR	-0.051***	-0.05***
LNASSET	-	-0.25***
LNGDP	2.08***	1.42***
INF	0.03*	0.11***
Wald chi2(8)	8987.43***	6366.59***
Sargan test	10.96	12.64
AR(1)	-1.66*	-1.73*
AR(2)	1.32	1.42
N	207	207

Source: Author's calculations. \*, \*\* and \*\*\* represent significance at 10%, 5% and 1% respectively.

Model (1) suggests that in line with theoretical expectations, capital adequacy (CAR), which represents the bank's stability and risk covering capability, has a significant positive effect on the bank's profitability. The model shows that the real interest rate (RIR) has a negative impact on the banks' profitability. This inverse relationship is expectable since at higher real interest rate, borrowers and businesses become less interested in purchasing financial facilities, and this affects the banks' main source of income that is the repayment of loans. The cost-to-income ratio (CIR), which reflects the banks' spending inefficiency, was also found to have a significant negative impact on profitability. It means that there are inefficient costs in the banking system. The GDP growth (LNGDP) was found to have a significant positive effect on the profitability. It can be argued that an active economy encourages business owners and people to further interact with the banks. Inflation also had a significant positive impact in this respect.

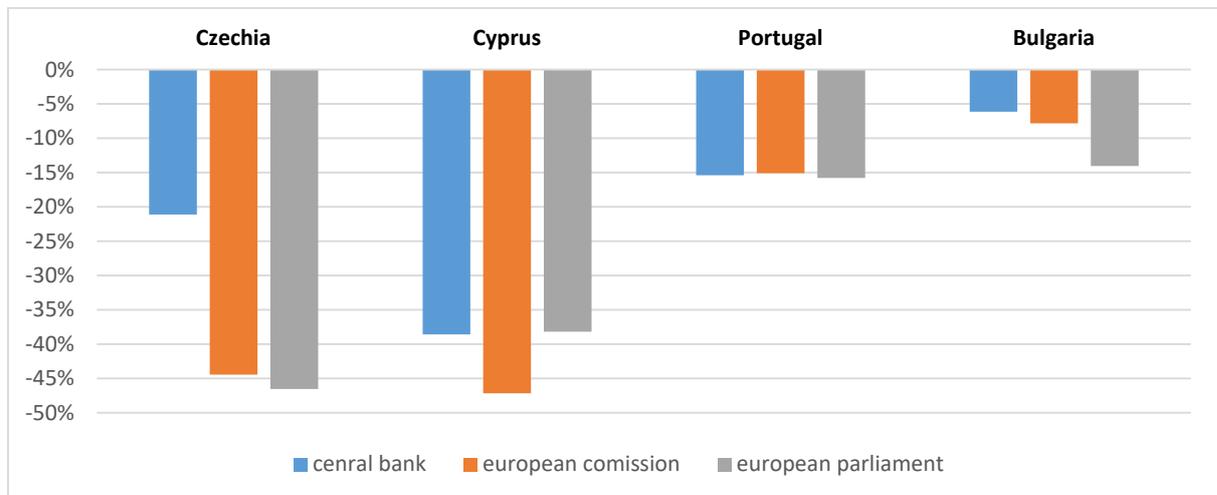
The main variable, i.e. social capital (general trust), also showed a significant negative impact on profitability. The more general trust, the fewer profits for the banking system. According to the results, the hypothesis is rejected. As we discussed in the literature segment,

social capital makes banking system agents act with higher levels of trust and with a lower level of transactional costs. Lower costs should result in much profitability but it did not occur in this model as in Model (2).

Largely similar results were obtained in Model (2), which investigated the effects of variables on return on average asset. But the main difference is the core topic of the debate. It concludes with a rejection of the hypothesis of a negative correlation between opportunistic behavior and economic performance. As in Model (2), more opportunistic behavior led to a more profitable performance of banks. It is against our expectations and should be justified. It can be justified by other available data resources. By studying some other surveys such as trust in European institutions (parliament, commission and central bank) it can be concluded that although opportunistic behavior is a negative factor influencing social capital and therefore banking performance but it is shown that in societies such as Bulgaria, Portugal, and Cyprus with high levels of opportunistic behavior, banking is one of the most trustable institutions than others such as parliament and politicians and others.

It can be concluded from what happened in 2008-2009. Financial crisis occurred and systemic trust in European countries decreased (Roth, 2009). However, it can be seen in countries with a low level of social capital that the change in trust to other institutions higher than in the central bank as a supervisory entity that prevent risks and defaults (Diagram 2).

**Diagram 2.** Percent of growth of trust in European institutions (2008-2016)



Source: Author's calculations from Eurostat.

As it can be seen in Diagram 2, decreasing of trust in European institution for central bank is less than others in societies with lower level of social capital. In these condition although trust in banks are decreasing compare with other institution is higher. In a society where people do not trust each other so much, banks are more trustable because transactions in banks are done by supervision of an institution like central bank.

The validity of the results was confirmed by the Sargan test and also by the AR1 and AR2 tests, which showed the existence of first-order correlation and the inexistence of second-order correlation between residuals.

## 5. Summary and conclusion

This study aimed to determine whether the social capital of a society, as a macro, macroeconomic or macrosocial concept, has an impact on the performance of the banks operating in that society. The definition of social capital in this study was the structure that facilitates the relationship between people and groups, and thereby economic relations as a Macro concept. It means that our concentration is general trust and context is the entire social network.

Using the GMM technique, we analyzed the data pertaining to 23 EU countries for the period 2008-2016 and found that social capital has a negative impact on the profitability of the banks against our hypothesis. It can be argued that less social capital leads to decreased bank's profit. The justification is in the societies with lower levels of social capital trust in banks is more than other institutions. Banks contracts are more clear and are under the supervision of a central bank that makes their transactions relatively secure. Apart from this, we should consider the 2008-2009 financial crisis that reduces level of social capital in all the European countries but as it was discussed before the native growth rate of trust in the banking system is less than others. In such a condition, banks are more trustable than others.

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