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Changes in the relationship between the financial and  
the real sector and the present financial crisis in the  
European Union

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# Title: Changes in the relationship between the financial and the real sector and the present financial crisis in the European Union

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**Abstract:** In the first part of the paper we confirm the existence of a financial “vanishing effect” for the Eurozone countries since the 90s. In the 70s and 80s -when credit over GDP was still moderate- credit growth still had a positive effect on real growth, but thereafter during the financialization heydays when credit reached a high level, that link broke apart. In the second part we put forward that a main reason explaining why increasing financial deepening stopped to have a positive effect on growth might be due to NFCs having used an important part of their external resources for the acquisition of securities instead of financing real investment. This process of NFC financialization and the observed increase in their self-financing ability are two key reassuring indicators showing the disconnection of NFC financial behaviour with their investment decisions.

**Key words:** bank credit, economic growth, NFC financing gap, NFC investment

**Journal of Economic Literature classification:** O47, G01, G21, C33

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## 0.- Introduction

During the last three decades the financial sector has increased its size in the vast majority of countries in the EU. On the other hand, this increase has been associated with significant changes in its relationships with the real sector of the economy; that is to say, with non-financial corporations, households and governments. In some other documents<sup>1</sup> some detailed information about the growth in the financial sector in Europe and the US is gathered; the same is also gathered for the changes observed in the intensity of the financial flows not only for the financial institutions but also for the changing relationship between them and the rest of the sectors in the economy. Consequently, we will not tackle again this data. In this paper, our interest is centred on a very specific aspect of the relationships between the financial sector and the real sector of the economy; moreover, the aspect we tackle has been the focus of attention of the research in the recent years. We are referring to the existing connections between, on the one hand, the evolution of credit given by financial institutions to firms and households and, on the other hand, the evolution of the economic rate of growth.

To the extent that credit contributes to expand aggregate demand via investment made by firms and households or consumption, it has a positive impact on the rate of growth of the economy. Empirical evidence for the last years has shown that the positive link between credit and economic growth has lost significance (vanishing effect) or, even worse, has become negative. How could this negative or, at least non-significant relationship be explained? One of the hypotheses discussed in the research (Montecino and Epstein, 2014; Epstein and Crotty, 2012) is that a significant part of the increase observed in credit is intra-financial, with this type of credit being negatively related to gross capital formation.

In this paper we use the Eurozone as case study to analyze, first, the relationship between credit evolution and the evolution of economic growth. After proving that this relationship becomes not significant at the end of the 80's, we provide an explanation to this change. Our explanation is focused on the use that non-financial-corporations (NFC) have given (at least

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<sup>1</sup> See FESSUD Studies on Financial Systems

since the end of the 90's) to the financial resources that they have got in financial markets. In our opinion the “Vanishing effect”, at least for the countries in the Eurozone, may be related to the financial activity of NFC. More specifically, the data we present shows that the external financial resources captured by NFC have been more related to the acquisition of financial assets, especially equities, than to gross capital formation. In other words, the financial resources captured by NFC did not leave the financial circuit but were transformed into other financial assets. Accordingly, the relationship between credit and real investment vanishes, at least to some extent, as a consequence of the gaining importance of financial investments made by NFC.

The document is organized in two different sections. In the first section we concentrate on the macroeconomic aspects of the issue. Concretely, in this first part we present the econometric results that show the changes in the relationship between bank credit and economic growth. In the second part we concentrate in the microeconomic aspects of this relationship. More concretely, in this second part we show the evolution of the financial resources captured by NFC as well as the final destiny of these resources.

## PART I: MACROECONOMIC ASPECTS OF THE RELATIONSHIP BETWEEN FINANCIAL AND REAL SECTORS IN THE EUROZONE

This deliverable about the changes in the relationship between the financial and the real sector in the EU raises a broad issue. As already mentioned, in this first part we tackle the link between both sides of the story in the light of an econometric model, after having reviewed recent key findings of a large, controversial and ongoing literature dealing with the effects of “financial deepening” on long run growth (Levine, 2005; Beck 2011 and Pasali 2013)<sup>2</sup>.

Levine (2005) published two years before the financial crisis a review of this literature, concluding there is clear-cut consensus of a strong, positive and causal link between financial deepening and long run growth<sup>3</sup>. This strand of the literature, embedded in the neoclassical new growth theory, underlines four main mechanisms through which finance can promote economic development: (i) the pooling of savings through risk diversification and risk management by “mobilizing” savings; (ii) the facilitation of exchange through the reduction of transaction costs; (iii) the improvement of capital allocation through the production of ex ante information about investment opportunities and (iv) the increase of investors' willingness to finance new projects through ex post monitoring and corporate

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<sup>2</sup> Levine's (2005) classic survey includes nearly 300 references and more recent surveys by Beck (2011) and Pasali (2013) cover more than 100 papers written after 2005 up to 2012. The key newest findings since then are reviewed in what follows.

<sup>3</sup> About the much debated issue on causality, Beck, Levine and Loayza (2000) were the first providing robust evidence in support of a causal link going from financial development to economic growth by using panel data and various GMM estimators. This methodology allows to control for time-invariant country-specific fixed effects and, under certain conditions, to establish causality by using lagged values of the explanatory variables as instruments. Levine (2005) concludes: “the preponderance of evidence suggests that both financial intermediaries and markets matter for growth and that the reverse causality alone is not driving this relationship”. However, GMM approach, which was considered the Holy Grail of causality in the profession, is now more skeptical of causality claims that only rely on internal instruments (Panizza, 2013).

governance. An efficient financial system may stimulate economic growth through the four mechanisms described above.

Not surprisingly, after the outbreak of the financial crisis, a critical view about finance has been revived and several authors have started to dispute the previous positive view of finance offering new robust empirical evidence on the contrary. Finance was found to promote growth, but is this still true? Is it true regardless of the size and growth of the financial sector?

A radical “no” to these questions is put forward by a large post-Keynesian literature. Their negative view about the role played by finance in mature capitalism is based on theoretical arguments and stylised facts. Finance dominated capitalism has several built in contradictions leading the economy towards recurrent crisis and slow growth. As stated in Hein and Dodig (2015) the main channels through which finance dominated capitalism exerts an negative impact on growth and stability is by raising the income share of capital and by depressing (real) investment. The recent crisis is a clear indication of the demise of finance dominated capitalism and imagining that this type of capitalism will be able to generate high growth in the future is illusory (Hein, Detzer and Dodig 2015). Additionally, many other critics have taken a look to the “dark side” of finance highlighting that financialisation (too much finance) leads to financial crises. Rodrik and Subramanian (2009) consider that the link between finance and economic growth is exaggerated or even non-existent in the developed countries. Bolton et al. (2011) point to the possibility that the financial sector may distort the allocation of resources; that the absorption of talents in the financial sector has a negative effect on productivity in industries (and finally on economic growth) that rely relatively more on skilled labour. An inefficient or malfunctioning financial system may hinder economic growth through the misallocation and waste of resources, by encouraging speculation resulting in underinvestment and in costly financial crises (Law and Singh, 2014). In such a case the financial sector abandons its role as a facilitator of economic growth and focuses on its own growth, generating banking and financial groups that are finally “too big to fail”, taking excessive risk leading to financial crisis (Creel, et al. 2015).

One key paper providing evidence that economies (a representative sample of developing and developed ones) may have reached a too much finance point is Rousseau and Wachtel (2011). They find a so called “Vanishing Effect” in a usual linear specification of financial deepening on growth, showing that for more recent periods (1990-2004), the assumed positive effect disappears (the positive correlation is not robust). It is worth mentioning that they obtain these results for a time period ending before the last financial crisis of 2007<sup>4</sup>.

Shortly after, Arcand et al. (2012) obtain an even clearer result regarding the “Vanishing Effect” by including data up to 2010 and try to find an answer for such a critical finding. They considered that this vanishing effect is not driven by a change in the fundamental relationship between financial deepening and economic growth, but by the fact that models that do not allow for a non-linear relationship between these two variables are miss-specified. Accordingly, they propose a quadratic specification that maintains the positive role of finance on growth up to a point, becoming negative thereafter (the coefficients for the proxy used to capture financial deepening presents a positive and a negative value in levels and squared respectively)<sup>5</sup>.

This finding has been confirmed also by Cecchetti et al. (2012), Pagano (2012), and Law and Singh (2014). Cecchetti et al. (2012) using Arcand’s quadratic specification for 50 diverse countries and for 1980 to 2009 period, conclude -with the usual disclaimer- that there comes a point where further enlargement of the financial system can reduce real growth, that there

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<sup>4</sup> Specifically, they use both OLS and GMM dynamic panel techniques for 84 countries from 1960 to 2004 and find that credit to the private sector has no statistically significant impact on GDP growth for the last sub-period 1990-2004. They test for the incidence of financial crises. Their estimations suggest that the vanishing effect may be due to the credit boom and the corresponding banking crises, which are often associated with rapid financial deepening.

<sup>5</sup> Arcand et al. (2012) use different types of data (at the country and industry level) and estimators (simple OLS, Panel GMM, semiparametric, differences in differences) to check for a non-monotone relationship. They find that the marginal effect of financial development on GDP growth becomes negative when credit to the private sector is close to 100 per cent of GDP even controlling for output volatility, banking crisis, low institutional quality and differences in banking regulation and supervision.



is a pressing need to reassess the relationship between finance and real growth and that more finance is definitely not always better. Following their suggestion, Pagano (2012) gets a similar result by using industry data for a sample of OECD and non-OECD countries ending in 2003. The positive effect of financial development on growth comes exclusively when financial development is at a relatively early stage; beyond a certain point financial development does not appear to contribute significantly. Finally Law and Singh (2014) find as well, that the quadratic specification is a robust one for capturing the effect of finance on growth and more importantly that this is valid not only for a sample of developing countries, but for a subsample of only developed ones too; however, for the latter coefficients are lower and less significant.

Beck et al. (2012) try to put aside the positive effect of finance on growth by including a measure of credit composition in the model. They find for a mix of countries (from 1994 to 2005) that there is a positive linear correlation between credit to NFC and economic growth, but no significant linear correlation between credit to households and economic growth. They also use a quadratic specification showing that the inverted "U" shape relationship holds too, but only again for credit to NFC. They conclude that it is possible that the "too much finance" result of Arcand et al. (2012) is really a "too much household finance" result.

Beck et al. (2014) for a period of analysis before the crisis (with data up to 2007) and for a diverse sample of 77 countries, find that only financial intermediation has a positive linear relationship with growth, but again this effect tends to become weaker as time passes, especially in high income countries.

Masten et al. (2008) focused their analysis on European advanced and transition economies. They find a strong growth effect of financial depth in transition economies but no effect in the more advanced EU countries. These authors suggest that while financial deepening may be helpful for transition economies with a relatively small financial sector, the process of financial deepening is no longer necessary for advanced economies in the European Union. More recently Creel et al (2015) in their analysis for EU countries for the period 1998-2011 conclude that financial instability has a negative impact on economic growth, and that the

traditional result that financial depth has a positive impact on growth is not confirmed for a subset of advanced economies like European countries. More importantly, they even find a negative effect of credit on growth in a linear specification using fixed, random and GMM techniques<sup>6</sup>.

Finally, another recent paper by Cournede and Denk (2015) find again in line with Creel et al (2015) a negative linear effect of credit on growth but no significant coefficients for the quadratic specification<sup>7</sup>. They conclude that credit is negatively linked with GDP growth and that this negative link is very robust (controlling for financial crisis and business cycles). However, despite the quadratic specification not being significant they also conclude that more finance (credit) is associated with higher GDP growth below a threshold of 100% of GDP.

But Cline (2015a and 2015b) tries to put aside again the positive role that finance (credit) plays for growth. He evaluates the recent findings by Arcand et al (2012) and Cournede and Denk (2015) critically and concludes that Arcand's negative quadratic effect of finance on growth is likely to be a spurious correlation. He states that there is an inherent bias towards a negative quadratic term in a regression that incorporates financial depth (that tends to rise with per capita income) along with the usual convergence variable (initial GDP per capita) in explaining growth. He demonstrates this by showing that one can get the same negative quadratic effect on growth for doctors per capita or fixed telephone lines per capita. Regarding the Cournede and Denk (2015) paper, his critique is that the negative linear effect of credit on growth implies that the optimal amount of credit is zero and that this result is reversed (becomes positive) when Purchasing Power Parity per capita income is used and country fixed effects are removed.

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<sup>6</sup> A previous study by Shen and Lee (2006) for 48 countries from 1976-2001 is probably the first one showing a negative linear effect of bank credit on growth and the existence of an inverted U shape relationship using OLS and panel techniques (fixed and random). However they don't use GMM dynamic estimators.

<sup>7</sup> The paper is for a sample of developed countries (OECD plus G20) and for the period 1961 to 2011. Results are the same for OLS with country fixed effects and GMM.

All in all from this discussion we can draw the following conclusions in line with Sawyer (2014): A positive result between the financial sector and economic growth is not a general and universal one. It seems to have weakened and may have been even reversed in recent years. Also the focus on bank credit as a measure of the financial sector is probably too narrow to reflect the expansion of the financial sector in recent decades in terms of many other assets issued by the financial sector.

Consequently, advancing within this same line of research but focusing now on the case of the Eurozone countries, the main questions we address in this first part of the deliverable are: what kind of relationship is out there in the case of Eurozone countries between finance and growth? Can we disentangle what aspects of finance are more positive or negative for growth in the Eurozone countries?

### 1.-Data and Methodology

We use data for the period 1970-2013 for 17 Eurozone countries. Table 1 shows the countries included in the study. The main sources of data are the World Bank's World Development Indicators and OECD. In order to implement the estimates some of the variables have been transformed as explained in Table 2. Table 2 also includes the description and specific source of data.

**Table 1. Countries in the study**

Austria	Malta
Belgium	Netherlands
Cyprus	Portugal
Finland	Spain
France	Slovak Republic
Greece	Germany
Ireland	Latvia
Italy	Lithuania
Luxembourg	

**Table 2. Variables**

Variable	Description	Transformation	Source
<b>GDPpc growth</b>	Rate of growth of GDPpc.	Computed as the difference between the logarithms of the GDPpc in year t minus the logarithm of GDPpc in the previous year <sup>8</sup> . 5-year window averages from 1970 to 2013.	World Bank World Development Indicators (WDI,2015)
<b>GDPpc</b>	Gross Domestic Product per capita.	5-year window averages from 1970 to 2013	World Bank World Development Indicators (WDI,2015)
<b>Education</b>	Average years of schooling of males and females above 25 years of age	5-year window averages from 1970 to 2013. It is measured as the log of one plus the averaged value.	Barro and Lee(2010)
<b>Inflation</b>	Rate of Inflation	5-year window averages from 1970 to 2013. It is measured as the log of one plus the averaged value.	World Bank World Development Indicators (WDI,2015)
<b>Credit</b>	Domestic Credit to Private Sector over GDP	5-year window averages from 1970 to 2013. In the linear model we take the logarithm of credit. In the quadratic specification we include the level and its square.	World Bank World Development Indicators (WDI,2015)
<b>GAV</b>	Gross Added Value of the Financial Sector over the Total Added Value in the Economy.	5-year window averages from 1970 to 2013. In the linear model we take the level of GAV. In the quadratic specification we include the level and its square.	OECD, Value Added by industry

<sup>8</sup> This is also made in Beck and Levine (2004).

In order to estimate the relationship between financial performance and economic growth we follow Beck and Levine (2004). Concretely we use the two-step GMM approach proposed by Arellano and Bond (1991) to estimate the dynamic model (1)

$$\dot{y}_{i,t} = \alpha y_{i,t-1} + \beta' X_{i,t} + \gamma F_{i,t} + \delta_t + \mu_i + \varepsilon_{i,t} \quad (1)$$

Where  $\dot{y}_{i,t}$  is the rate of growth of GDP per capita in country  $i$  at year  $t$ ,  $y_{i,t-1}$  is the initial GDP per capita in country  $i$  at year  $t-1$ ,  $X_{i,t}$  is a set of controls including inflation and education,  $F_{i,t}$  is the financial variable aim of the analysis,  $\delta_t$  and  $\mu_i$  are controls for time and country fixed effects respectively and  $\varepsilon_{i,t}$  is the remaining error term.

We estimate the model for different period subsamples. First, for the period 1970-1989, second, for the period 1970-1994, third, for the period 1970-1999 and, finally, for the period 1970-2013. This way of proceeding is a way to identify and date the existence of a probable “vanishing effect”. As is well known most of the deregulation of the financial system took place between the end of the 80s and mid 90s. So, the vanishing effect (i.e. the lost of significance of the coefficient “ $\gamma$ ” in the linear specification of model (1)) might be detected in the first half of the 90s already, when deregulation triggered an unprecedented growth of finance (of bank credit in particular) leading towards a “too much finance” outcome. Additionally, we extend the analysis looking for the possible existence of an inverted U-shape relating financial depth and economic performance. In order to do so, we include a quadratic form of the financial variable within the set of financial variables and estimate specification (2) of the econometric model

$$\dot{y}_{i,t} = \alpha y_{i,t-1} + \beta' X_{i,t} + \gamma_1 F_{i,t} + \gamma_2 F_{i,t}^2 + \delta_t + \mu_i + \varepsilon_{i,t} \quad (2)$$

Where  $\dot{y}_{i,t}$  is the rate of growth of GDP per capita in country  $i$  at year  $t$ ,  $y_{i,t-1}$  is the initial GDP per capita in country  $i$  at year  $t-1$ ,  $X_{i,t}$  is a set of controls including inflation and education,  $F_{i,t}$  is the financial variable aim of the analysis,  $F_{i,t}^2$  the quadratic form of the same financial

variable,  $\delta_t$  and  $\mu_i$  are controls for time and country fixed effects respectively and  $\varepsilon_{i,t}$  is the remaining error term. We do the estimates for two different measures of financial depth: Domestic Credit to private Sector over GDP (Credit) and Gross Added Value of the financial system over the Gross Added Value of the whole economy (GAV). Neither domestic credit nor finance GVA can capture all aspects of the much broader and richer concept of financialisation, but nevertheless both variables are key ones and allow us to compare our results with the above mentioned literature, especially regarding credit. Moreover, they complement each other quite well. Credit is a main product of financial activity, especially in a financial system dominated by banks as is the case in the Eurozone and finance GAV looks to the financial system from the income side perspective<sup>9</sup>.

## 2.- Results

Table 3 and 4 show the results for estimates of equation (1) and (2) for “Credit” and “GAV” respectively. In both cases the first two columns provide the result for the whole period 1970 to 1989. Columns three and four report the results for the period 1970-1994; columns five and six report the results for period 1970-1999 ; finally, columns seven and eight report the results for the whole period 1970-2013. Results for specification (1) are in the columns entitled “Linear” and those for specification (2) in the columns entitled “Quadratic”.

Results in table 3 reveal the existence of a vanishing effect in the Eurozone for the variable “credit”. This is shown clearly by the loss of significance of the coefficient in the linear specification as we include additional time periods closer to the present. Moreover, it does not only lose significance but also the value of the coefficient is lower the closer we are to the present. Additionally, we can date the starting of the vanishing effect somewhere between the end of the 80s and the beginning of the 90s. So, we find that credit had a positive effect on growth until the 90s but thereafter it started to become irrelevant. It is worth mentioning that in line with Rosseau et al (2011) we find a vanishing effect, that for the Eurozone starts earlier than for their sample of countries and whose existence is still occurring. However, in

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<sup>9</sup> We have run the same models with FS employees and results are quite similar to GAV.

contrast to Creel et al (2015) and Cournede and Denk (2015) results do not reveal a significant negative linear effect of credit on growth. Additionally, in contrast to several papers mentioned above, our estimates for the quadratic specification in the Eurozone reveal that the vanishing effect is not related to a problem of misspecification. In fact, the quadratic relationship is not significant in any of the periods analyzed for “Credit” variable. That is to say, there is no evidence of an inverted-U shape relationship between finance and economic growth in the case of the Eurozone when financial sector is proxied by the variable “Credit”. So, all these results obtained here seem to be more reliable if we take Cline (2015a and 2015b) critique seriously (no significant linear negative effect plus no spurious negative quadratic effect).

Results of table 4 for financial system GAV are not so reassuring. There seems not to be any significant linear effect of finance GAV on growth in any period, but only a positive effect in the quadratic form in the first period. Somehow, it seems that finance GAV stop to have a positive effect on growth and started to have a negative one at a very low level and this happened also very early during the 80s.

In sum, we find evidence of the existence of a vanishing effect of finance on growth in the Eurozone. However, this vanishing effect cannot be explained by a misspecification error due to the existence of a quadratic relationship between finance and growth, as proven by the non-significant coefficients in the estimates of the quadratic models for the whole period (1970-2013). According to our results, from 1970-1989 finance was benign, at least to some extent, for economic growth in the EU, while, from 1990-2013 it was not benign neither detrimental for EU's economic performance.

**Table 3. Results. Robust Arellano and Bond GMM Estimates of Economic growth. Dynamic panel-data estimation, two-step difference GMM. Dependent variable: GDPper capita growth. Financial depth measured by "Credit".**

	(1970-1989)		(1970-1994)		(1970-1999)		(1970-2013)	
	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic
log GDPpc(t-1)	-0.562 (0.082)***	-0.541 (0.11)***	-0.424 (0.08)***	-0.368 (0.09)***	-0.437 (0.06)***	-0.378 (0.08)***	-0.114 (0.06)**	-0.14 (0.06)**
Education	0.024 (0.11)	0.042 (0.18)	0.012 (0.29)	0.024 (0.26)	0.403 (0.28)	0.487 (0.32)	0.06 (0.16)	0.025 (0.16)
Inflation	-1.619 (0.049)***	-1.701 (0.69)**	-2.091 (0.36)***	-2.454 (0.55)***	0.053 (0.30)	0.025 (0.32)	-0.379 (0.25)	-0.378 (0.26)
log Credit	0.151 (0.043)***		0.062 (0.09)		0.035 (0.08)		-0.035 (0.04)	
Credit1		0.519 (0.55)		-0.027 (0.61)		-0.013 (0.28)		-0.071 (0.07)
Credit2		-0.209 (0.47)		0.114 (0.42)		0.0001 (0.12)		-0.002 (0.02)
Obs.	27	27	41	41	56	56	106	106
Arellano-Bond test for								
AR(1)	0.13	-0.07	-0.80	-1.10	-3.13	-3.10	-3.30	-3.27
<i>-value</i>	0.898	0.942	0.424	0.269	0.002	0.002	0.001	0.001
Arellano-Bond test for								
AR(2)	.	.	-0.33	-0.13	1.62	1.72	-0.42	-0.07
<i>p-value</i>	.	.	0.741	0.896	0.105	0.086	0.673	0.945
Sargan Test of								
Overid.Restrictions	15.88	3.00	21.63	14.21	31.19	26.79	47.21	44.71
<i>p-value</i>	0.000	0.083	0.000	0.001	0.000	0.000	0.000	0.000
Hansen Test of								
Overid.Restrictions	3.88	4.07	9.19	7.55	13.88	13.06	14.48	14.54
<i>p-value</i>	0.144	0.044	0.027	0.023	0.008	0.005	0.025	0.024

Note. Time dummies included. Windmeijer's (2005) robust standard errors in parenthesis. All available instruments included. \*Significant at 10%. \*\*Significant at 5%. \*\*\*Significant at 1%.

The reported robust standard errors are those proposed by Windmeijer (2005). All the available instruments are used in the estimates. Controls for initial GDP per cápita, education and inflation are included. Results for the whole sample reveal are those expected : the two-step Sargan tests as well as Hansen tests for over identification rejects the null hypothesis in all cases; the test for first-order serial correlation rejects the null hypothesis of no first-order serial correlation, but does not reject the null hypothesis that there is no second-order serial correlation.

Tests for the subsamples are also provided. Differences between the number of periods and number of cross sectional observations may explain the different behaviour of the tests and the inexistence for shorter periods of time



**Table 4. Results. Robust Arellano and Bond GMM Estimates of Economic growth. Dynamic panel-data estimation, two-step difference GMM. Dependent variable: GDPper capita growth. Financial depth measured by "GAV".**

	(1970-1989)		(1970-1994)		(1970-1999)		(1970-2013)	
	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic
log GDPpc(t-1)	-0.501 (0.03)***	-0.511 (0.03)***	-0.466 (0.05)***	-0.463 (0.05)***	-0.475 (0.05)***	-0.469 (0.06)***	-0.234 (0.03)***	-0.23 (0.03)***
Education	-0.168 (0.08)**	0.03 (0.21)	-0.327 (0.26)	-0.316 (0.29)	-0.225 (0.16)	-0.242 (0.17)	-0.34 (0.17)**	-0.34 (0.16)**
Inflation	-1.635 (0.15)***	-1.745 (0.24)***	-1.901 (0.35)***	-1.891 (0.38)***	-1.949 (0.22)***	-1.956 (0.22)***	-2.162 (0.41)***	-2.106 (0.46)***
log GAV	0.049 (0.04)		0.015 (0.13)		0.027 (0.04)		-0.026 (0.09)	
GAV1		14.331 (7.82)*		1.657 (4.65)		0.831 (2.03)		-0.544 (1.87)
GAV2		-141.032 (81.91)*		-6.922 (14.73)		-1.754 (5.79)		1.166 (5.16)
Obs.	17	17	27	27	38	38	77	77
Arellano-Bond test for								
AR(1)	2.26	1.15	-0.84	-0.85	-1.10	-1.13	-2.72	-2.84
<i>p-value</i>	0.024	0.249	0.399	0.397	0.272	0.258	0.006	0.004
Arellano-Bond test for								
AR(2)	.	.	-1.46	-1.45	-1.23	-1.22	-1.18	-1.32
<i>p-value</i>	.	.	0.145	0.146	0.219	0.222	0.238	0.186
Sargan Test of								
Overid.Restrictions	1.50	1.95	15.74	16.38	18.50	18.40	33.98	33.85
<i>p-value</i>	0.220	0.163	0.000	0.000	0.000	0.000	0.000	0.000
Hansen Test of								
Overid.Restrictions	0.73	1.07	5.55	5.66	6.43	6.46	12.03	11.96
<i>p-value</i>	0.394	0.302	0.062	0.059	0.093	0.091	0.061	0.063

Note. Time dummies included. Windmeijer's (2005) robust standard errors in parenthesis. All available instruments included. \*Significant at 10%. \*\*Significant at 5%. \*\*\*Significant at 1%.

The reported robust standard errors are those proposed by Windmeijer (2005). All the available instruments are used in the estimates. Controls for initial GDP per cápita, education and inflation are included. Results for the whole sample reveal are those expected : the two-step Sargan tests as well as Hansen tests for over identification rejects the null hypothesis in all cases; the test for first-order serial correlation rejects the null hypothesis of no first-order serial correlation, but does not reject the null hypothesis that there is no second-order serial correlation.

Tests for the subsamples are also provided. Differences between the number of periods and number of cross sectional observations may explain the different behaviour of the tests and the inexistence for shorter periods of time.



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## PART II: FINANCIAL ACTIVITIES OF NON FINANCIAL CORPORATIONS

In the previous pages we have been able to show that the positive and significant relationship between economic growth and bank credit to the private sector observed during the 70's and 80's in the previous century disappears from the decade of the 90's onwards. The aim of the this second part, as it was put forward in the general introduction, is to provide some ideas, which allow to understand the causes behind the break in this relationship.

The elements we are talking about are centred on showing how European NFCs, at least from the beginning of the last decade, become active agents in the financialisation process of the economy. More specifically, we will try to give some empirical evidence that shows the existing disconnection between the financial resources captured by NFCs and the development of their productive activity; this activity measured by their investment in fixed capital (GFCF). The data we present seems to show that the resources captured by NFC are more directly linked to the investment on financial assets than to their productive investments.

Post-keynesianism has shown the negative effects that financialisation of NFCs have on economic growth (Orhangazi, 2008; Stockhammer, 2004). For these authors the NFCs' increases in financial investments, fed by the higher profitability that these type of investments provide in the short run, have contributed to lower growth in productive investment. The hypothesis we develop in this section in order to explain the so called "vanishing effect" is not against this post-Keynesian thesis; on the contrary, it complements such thesis. Our aim is to study the use that NFCs give to the resources raised from financial markets. We find that these resources have no elation with productive investment, but with the acquisition of financial assets. NFCs' financial investments (which center post-Keynesian analysis) would, according to our data, be financing themselves by means of financial market indebtedness. The financialisation process of NFCs would then be more intense than the one previously found in the literature. NFCs would not only be prioritizing financial investments at the expense of productive investments; their positions in financial assets would also be

financed by means of their financial liabilities. The disconnection between real and financial activity of NFCs would be almost complete. Real investment may be financed by own-resources; using the financial resources captured in markets to the acquisition of financial assets.

However, the financial crisis seems to have contributed to break the relationship between the financial assets and financial liabilities of NFC. Even if NFC's acquisition of financial assets has not completely plummeted, the acquisition of external financial resources has registered a significant diminution; as a consequence, the link observed in the years prior to the crisis between both series has lost intensity. This break in the series, nevertheless, has not contributed to link again bank credit and economic growth, at least for the time being, due to the fact that during the years of the economic crises an increase in the self-financing ability of the firms is observed.

In sum, the process of financialisation of NFCs, on the one hand, together with the increase in the self-financing ability registered for the last years, on the other hand, are two factors that could well contribute to explain the collapse in the macroeconomic relationship that we presented in the first part of the present paper. Certainly, our hypothesis would need a deeper analysis to be applied - which has not been developed here; on the one hand, for lack of data and, on the other hand, because it would be out of the scope of the present work.

The first year included in this second part is 1999, when we have homogeneous aggregated data for the whole Eurozone. In fact, we are enlarging the conclusions we obtain to prior periods; at least to the beginning of the 1990s, in which our macroeconometric models show the existence of a break in the relationship between credit and economic growth. The financialization of NFCs, at least from their dimension of financial investors, was evident even before the 1990s. However, we cannot as strongly affirm the same for the acquisition of financial assets and indebtedness. The most likelihood for this connection to have been developed during the 1990s is the simultaneous process of deregulation and financial markets' liberalization. In any case, the study of the features and intensity of the process requires further information and analysis.

On the other hand, attributing the break in the relationship between credit and economic growth to the financialisation of NFCs implies accepting that, during the years in which that relationship was positive and significant, financial resources raised by NFCs were dedicated to productive investment - at least in the dimension we are treating in this work; that is to say, in the disconnection between acquisition of financial assets and indebtedness. Clearly, keeping this assumption - although in our opinion is not far from the reality - would imply using more detailed information (not provided in this document) about the financial activity of NFCs during the decades prior to the 1990's. In any case, even after listing all the limitations, we agree that the hypothesis advanced in the present document could be a nice starting point for future research on the relationship between this financial dimension and the real dimension of the economy.

The second part of the paper is structured as follows. In the next section we present a global view on the evolution of the so called "financing gap" of NFCs from 1999 to 2014. Following this section, we present the evolution, before and after the crisis, of the main financial instruments used by NFCs. Afterwards, we present the data that gives some information about the financial activity of NFCs, and finally, we show the evolution of the bank credit demand during the years of the crisis.

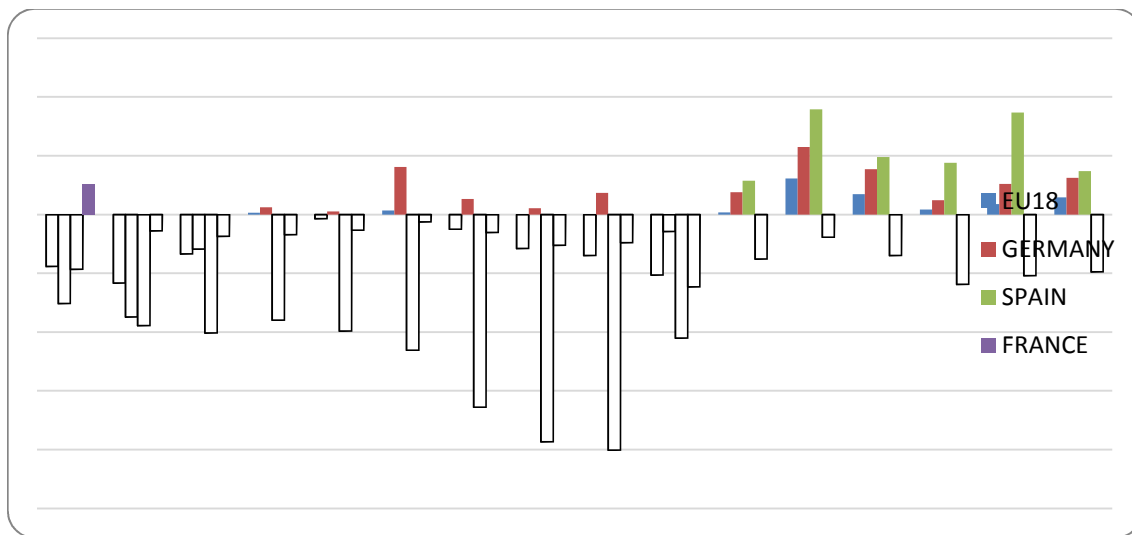
## 1.- Financing gaps

The financial needs of NFCs, in principle are connected with the needs of resources to finance their productive activity. The debtor (+) or creditor (-) position of the NFCs with respect to other sectors of the economy, in terms of non-financial accounts, is equal to the sum of gross savings (GS) and net capital transfers (CT) minus the gross fixed capital formation (GFCF).

Figure 1 presents the debtor or creditor position of the whole of the Eurozone and of three of the largest Euro area countries (Germany, Spain and France) for the period 1999-2014. Figure 2 presents the same information aggregated into two sub-periods. The first sub-period (1999-2008) covers the years before the crisis and the second sub-period (2009-2014) cover the years of the crisis. Data are expressed as percentages of GDP of each country and,

in the case of the Eurozone, as a percentage of the GDP of the whole of the Euroarea. Figure 2 shows the average values for each period, expressed also as percentages of GDP.

Figure 1. Financing gaps 1999-2014. Expressed as percentages of GDP.



Source: ECB and own elaboration

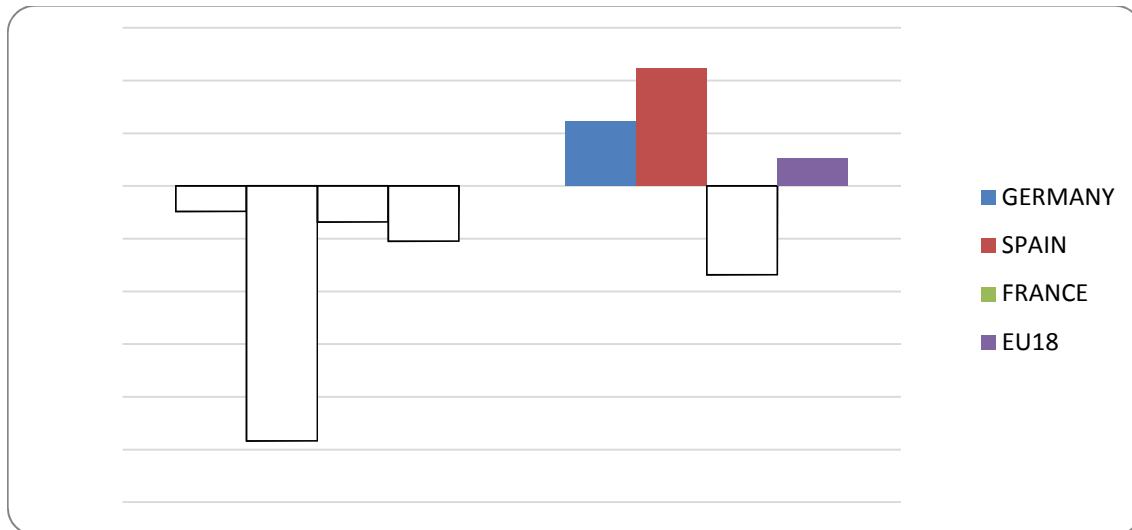
As can be seen in Figure 1 financial needs change over time for the NFCs of both the whole of the Eurozone and the three largest countries under study. During the early years of the last decade (1999-2001) these financial needs amounted to 2% of GDP in the Eurozone. In the subsequent years (2002-2004) these financial needs remain the same, and even the rate is positive in some years. Between 2005 and 2008 the financing needs increased again, reaching an average value equivalent to 1.3% of GDP. In the last period, coinciding with the first years of the crisis, the Eurozone NFCs became net lenders to the rest of the economy.

If we look at the evolution of each country considered, it may be seen that the paths are not identical, nor between them or with respect to the Eurozone. The German NFCs started the decade with financing needs equivalent, on average values, to 2.6% of GDP for the period 1999-2001. However, during the rest of the years, with the exception of 2008, the sign reverses and the NFCs became net lenders to the other sectors of the economy. The French NFCs, meanwhile, showed increased financing needs over the years studied, especially

during the years of the crisis. In the case of the Spanish NFCs two periods, delimited by the crisis, are identified. In the years before the crisis, the NFCs' financial needs increased continuously until 2009 and from that moment those companies started to become net lenders to the other sectors of the economy.

Figure 2 present the previous information grouped into two periods, as noted above: the years before the crisis (1999-2008) and the years of the crisis (2009-2014). In the first sub-period the NFCs, for both the Eurozone and the three countries under study presented financing needs, i.e. they had negative "financing gap". These needs, however, were significantly different, both across the three countries under study and between these countries and the Eurozone. The Spanish NFCs are by far those who had higher financing needs. During this first sub-period, on average value, these companies needed the equivalent to 4.84% of GDP to cover their investments. In the opposite extreme we find the German NFCs, whose financing needs, on average value for the period, amounted to 0.48% of the GDP. The French NFCs needed financial resources equivalent to 0.68% of GDP on average value for the entire period, slightly below the ratio of the Euro zone's NFCs 1.05%).

Figure 2. Financing gaps (1999-2008) and (2009-2014). Average values expressed as percentages of GDP.



Source: ECB and own elaboration

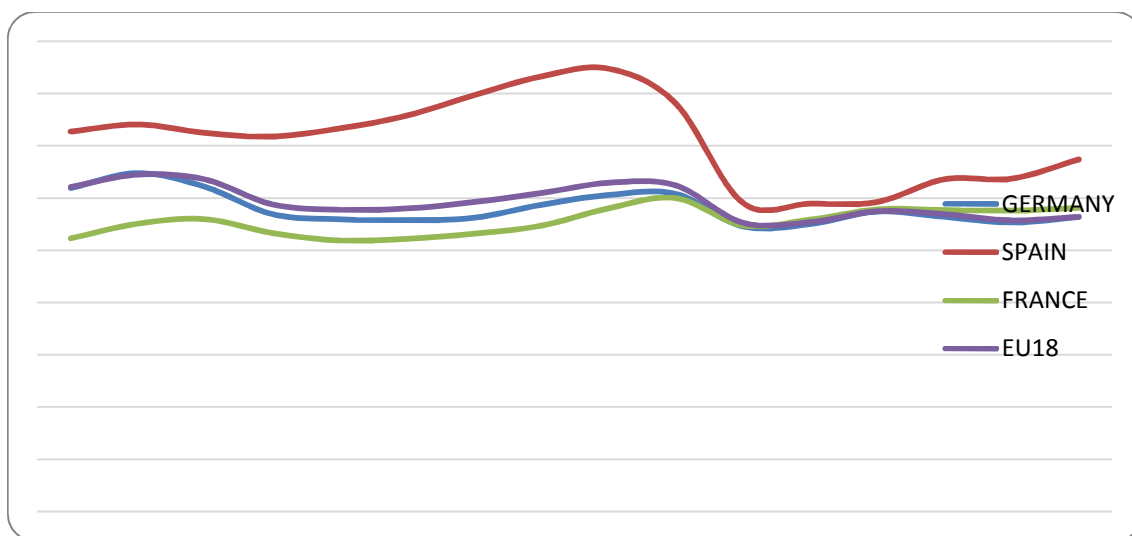
During the years of the crisis (2009-2014) the sign of the financial needs changes. The NFCs changes from being net debtors to net creditors of the rest of the sectors of the economy. The only exception to this rule is found among the French NFCs which continue to require external financing during those years of the crisis. Their financial needs amounted on average to 1.7% of GDP for the period. The most radical change is observed in the Spanish NFCs which had a net financing capacity equivalent, on average, of 2.23% of GDP during the same period. German NFCs also improved their financial position, as they had been lending to other sectors of the economy the equivalent on average of 1.23% of GDP. The Eurozone NFCs registered a lower ratio than that of the German companies, though also positive (0.52%).

The change in the financial needs from one period to another is the result of, on the one hand, a decline in the GFCF during the years of the crisis and, on the other hand, an increase in the internal funds, measured as the gross saving of the NFCs.



Figure 3 shows the evolution of GFCF of the NFCs from 1999 to 2014 and Figure 4 presents the same information grouped into the two sub-periods used previously. Again, the data are average values for each period.

Figure 3. Evolution of Gross Fixed Capital Formation. 1999-2014. Expressed as percentages of GDP.



Source: ECB and own elaboration

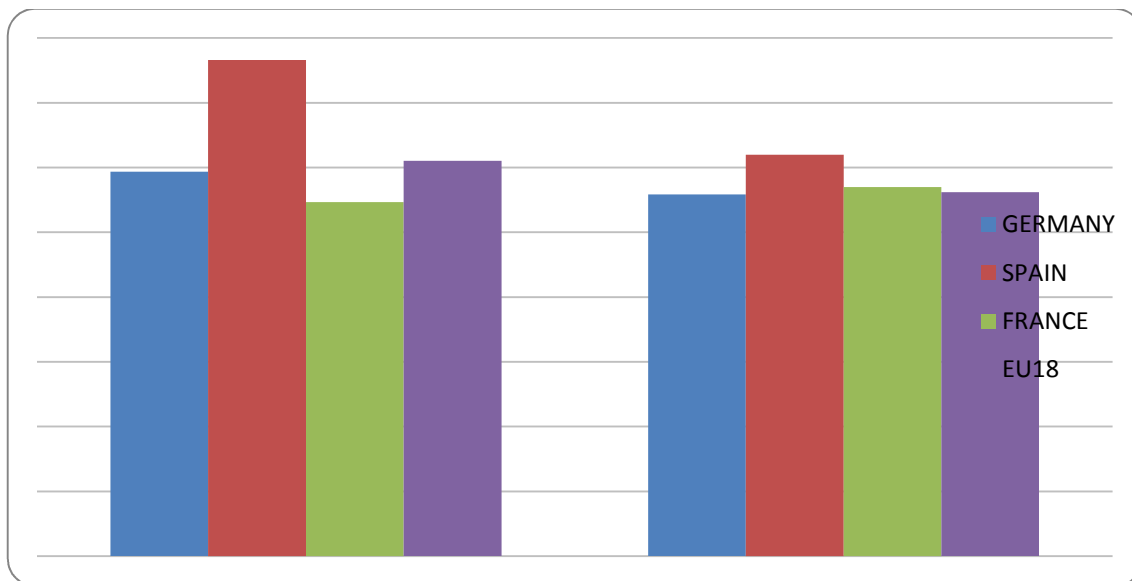
As can be seen, the crisis marks a turning point in the evolution of the GFCF. The change that we observed, however, is not particularly radical (with the exception of Spain) bearing in mind the intensity of the crisis. The evolution of this variable during the whole period in the Eurozone, moreover, describes a very similar path to the one already noted when referring to the evolution of the financing gap. During the first years (1999-2001), the GFCF made by the Eurozone NFCs equalled on average to 12.7% of GDP, very similar to the percentage (12.4%) reached in the years prior to the crisis (2006-2008).

In the years following the bursting of the bubble “doc-com” (2002-2005) that percentage decreased to 11.7%, i.e. one percentage point lower. Again, in the years immediately prior to the current crisis (2006-2008), the percentage rose almost one percentage point compared

to the previous period (12.4%) to fall once again by one percentage point, to 11.2% between 2009 and 2014. The investment made by the German NFCs followed a very similar pattern to that of the Euro zone.

In Figure 4 we can see more clearly that the change in this variable is particularly intense in the case of the Spanish economy. During the years before the crisis, the Spanish NFCs maintained an accelerated investment pace. The average value of this variable was 15.3% of GDP during the period 1999-2008, three percentage points higher than that presented in the Eurozone. Even though this percentage dropped to 12.4% during the crisis, it was still one percentage point higher than that of the Eurozone.

Figure 4. Evolution of Gross Fixed Capital Formation. 1999-2008 and 2009-2014. Average values expressed as percentages of GDP.

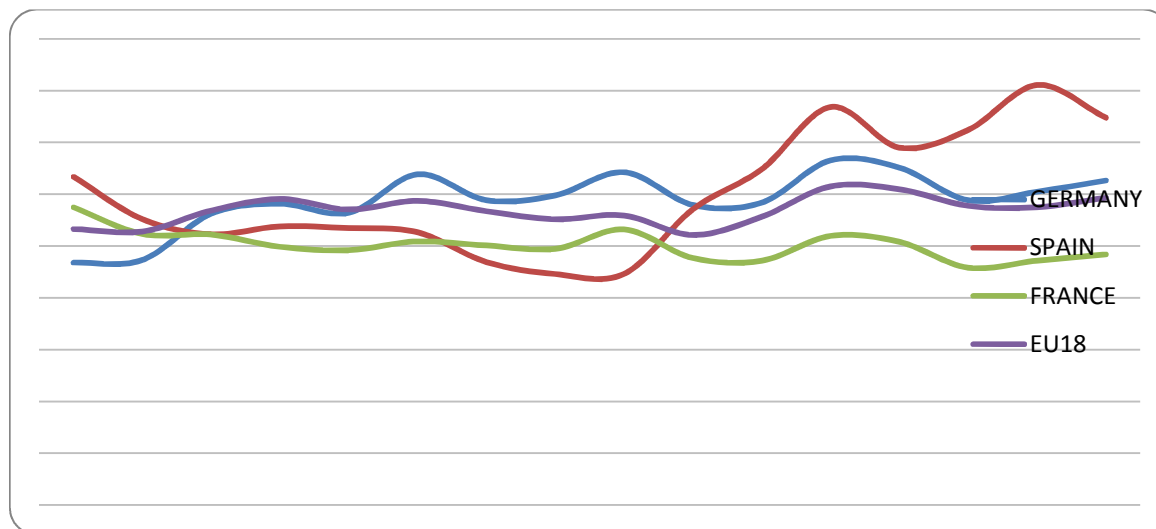


Source: ECB and own elaboration

As for the internal funds, Figure 5 shows the evolution of the NFCs gross saving<sup>10</sup> for the whole period under study and Figure 6 presents the average values for the two sub-periods that we are considering.

In the years prior to the crisis, the evolution of the internal funds of the Eurozone (Figure 5) is relatively stable. Except for the first two years which coincide with the "dot-com" bubble, this rate stood, on average, at 11% of GDP. The same conclusion is applied to the German NFCs. The most pronounced trend, again, is that of the Spanish NFCs which have had a downward trend since the beginning of the decade (when their savings rate was equivalent to 12.7% of GDP) until 2007 (when their savings rate reached the lowest value of 9%). Therefore, the changes in the "financing gap" to which we have referred above were better explained by the evolution of the investment than by the evolution of the self-financing capacity, at least until the beginning of the crisis.

Figure 5. Evolution of the Gross Saving. 1999-2014. Expressed as percentages of GDP.

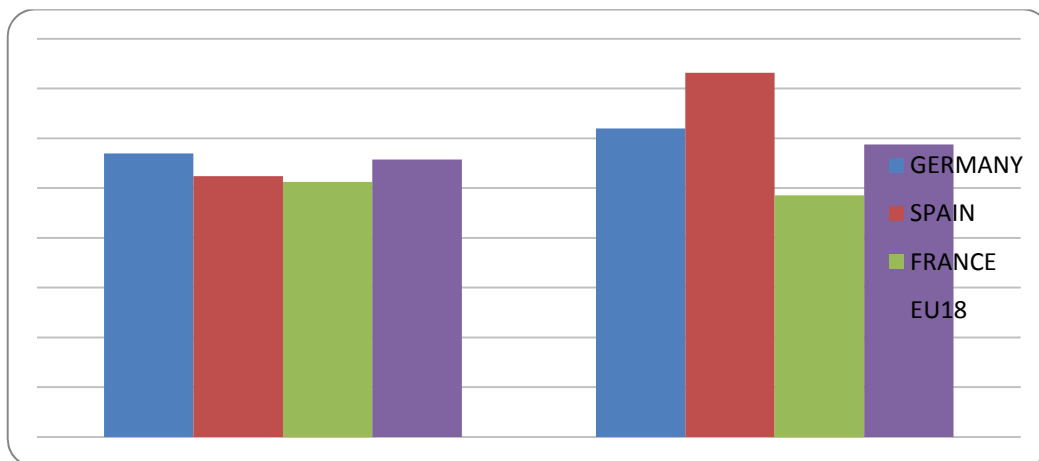


Source: ECB and own elaboration

<sup>10</sup> The variable "Gross Saving" includes net capital transfers, so this variable measures the self financing capacity of the NFCs.

The crisis, however, marks a more dramatic turning point in the latter variable than in the former one. The increase in the savings rate of the Euro zone NFCs was on average half a percentage point of GDP during the first years of the crisis, reaching in some years values above 12% of GDP. The most significant increase occurs in the Spanish economy, where the average rate of gross saving of the NFCs increases from 9.47% in the years before the crisis to 13.75% between 2009 and 2014. The German NFCs increases this ratio by one percentage point on average, from 10.76% to 11.85%.

Figure 6. Evolution of the Gross Saving. (1999-2008) and (2009-2014). Average values expressed as percentages of GDP.



Source: ECB and own elaboration

## 2.-Evolution of External Resources collected by NFCs

### 2.1.-Low diversification of the external sources of financing

In this second section we will show the main sources of financing used by NFCs to cover their financial needs. Before exposing the data of the Financial Accounts, it seems appropriate to present the results obtained from the information contained in the "Survey on Access to Finance of Enterprise" (SAFE). This section aims to show the strong dependence that NFCs of the Eurozone have on Bank Credit (our explanatory variable in the econometric model of above).

The SAFE is a survey conducted by the ECB and it is addressed to non-financial companies. It aims at identifying the financing problems that are faced by NFCs. The SAFE provides more complete information on the financial sources of the NFCs than that provided by the Bank Lending Survey, which only has information on bank loans. In addition, the SAFE allow us to capture the differences in the companies' access to external financial sources according to their size. However, in this report we will not explore this size dimension in detail.

Given the aim of this study, we have focused on two of main questions contained in the questionnaire of the SAFE. The first of these questions intends to know the diversification of financing sources used by NFCs. In this regard, companies are asked about the *relevance* of different sources of financing in their financial structure. The second main question is of short-term nature. Companies are asked about financing sources *used* during the semester of reference. Through this second question we are able to form an opinion on the restrictions faced by NFCs (in the case that companies have had financial needs) on each of the financial channels that they use. Indirectly, we can also have information about the existence of such financial needs.

The main results that have been obtained from all the waves of the SAFE available at the time of completion of this work are as follows. Table 5 shows the data on the sources of financing considered as relevant or of structural nature by NFCs, according to the information provided by the SAFE. The values are the percentage of NFCs that indicate whether each specific financing source "is relevant".

Table 5. Relevant financing sources. Average percentage of NFCs. 2009-2014

	Internal Funds	Bank loan	Trade credit	Debt securities	Equity investments
Germany	55.4	71.7	26.9	2.4	23.5
Spain	47.9	76.0	64.1	8.8	10.5
France	48.4	88.5	54.3	21.9	45.6
Eurozone	48.1	74.1	53.6	10.7	23.3

Source: SAFE and own elaboration

As shown in Table 5, bank credit is a structural financing source for 74% of the Euro zone NFCs. When compared with other financing sources it is easy to note that this source is the dominant one for the Euro zone NFCs. In the case of the French NFCs this percentage is 88%. The German NFCs are somewhat less dependent (71.7%) on this source than the European NFCs while the Spanish NFCs are more dependent (76%).

The dependence on this financial instrument is independent of the companies' size. While it is noted that the percentage of firms considering this financial source as relevant increases with the size, the differences across size are not as significant as those found in the rest of the financial sources. For example, 61% of Germany's smaller NFCs (fewer than 10 employees) report that bank loans have a structural nature in their financial structure. This share is 78% for large companies (250 and more employees). Similar results are obtained for the rest of the countries and for the Euro zone as a whole.

The relevance of the capital market, measured by the percentage of NFCs that use debt issuance as an instrument for collecting funds, is very low in the Eurozone as a whole. Only 10.7% of companies report that they use this instrument as a financing source. The French NFCs seem to be the most active ones in the capital markets since 22% of them report that this instrument has a structural nature in their financial structure. The German NFCs, however, are those that make least use of this instrument. Only 2.4% of these companies consider that the debt issuance is a relevant financing source. The Spanish NFCs are close to the average of the Eurozone.

In relation to the companies' size, debt issuance this is practically irrelevant for the smallest companies. It is among companies with 250 and more workers, and to a lesser extent, among companies with between 50 and 250 workers when this instrument becomes somewhat more relevant. For example, if we refer to the French NFCs, where this instrument is more widespread, only 35% of companies with 250 and more employees reported that this instrument is relevant in their financial structure.

Collecting funds by issuing equities is relevant for 23.3% of the Eurozone NFCs. France exhibits the highest share of NFCs that consider this instrument as relevant. Germany has a similar percentage to that of the Eurozone while the Spanish NFCs are those that make the least use of this instrument. Regarding companies' size, it should be noted that this instrument is more relevant for large companies than for small and medium ones. However, these differences are not as dramatic as in the case of the debt securities issuance.

The use of self-financing is relevant for 48% of the Eurozone NFCs. This instrument is more relevant among the German NFCs. The French and Spanish NFCs exhibit similar percentages to the Eurozone average. It should be noted that the relevance of the self-financing increases with the firms' size. The use of self-financing is also a relatively common practice among small companies.

Finally, 53.6% of the Eurozone NFCs report that trade credit is a relevant financing source. The weight of this instrument is particularly significant among the Spanish NFCs while only 27% of German NFCs consider this instrument as relevant. In this case, the differences across companies' size are less significant. In Spain, however, this instrument seems to be relevant for NFCs of all sizes.

The SAFE, as noted above, asks NFCs about the use they have made of each financing source in the semester of reference. The information contained in this section of the survey allows us to appreciate the financial constraints of NFCs during the crisis. Table 6 shows the results obtained considering all the waves of the SAFE available up to now.

Table 6. Sources of financing used by NFCs. Average percentage of NFCs. 2009-2014

	Internal Funds	Bank loan	Trade credit	Debt securities	Equity investments
Germany	69.4	52.7	67.4	18.8	55.9
Spain	58.5	51.2	73.6	29.9	30.8
France	31.7	42.3	37.9	5.9	16.1
Eurozone	56.0	48.9	70.5	23.5	29.0

Source: SAFE and own elaboration

The crisis, as it is suggested by the data presented in the previous section, has led to a decline in the NFCs' demand for external financial resources, so that, the number of companies that have needed financial resources has decreased compared to the years before the crisis. Since the SAFE has been gathered since 2009 we do not have information for the pre-crisis years. As a consequence, from the data in table 6 we cannot conclude whether these values are different or not to the values that could have been registered for the years prior to the crisis. The data in this table are the percentage of NFCs that, having reported that a particular instrument is relevant in their financial structure, state having used such instrument during the semester of reference.

Only 48.9% of the Eurozone NFCs that consider bank credit as a relevant instrument in their financial structure report having used it during the years of the crisis. This share is somewhat higher (with the exception of France) in the countries that we are studying. Regarding the companies' size, we find that the drop in the use of this instrument is higher among small firms than among large firms. Most firms that report not having used this instrument reveal that they did not use it because they had sufficient internal funds<sup>11</sup>.

Concerning the raising of funds through the capital market, Table 6 shows that only 23.5% of the Eurozone NFCs that consider that the issuance of debt securities is relevant, report

<sup>11</sup> The SAFE only provides information about the reasons why NFCs do not use a particular financing source for the case of the bank credit.



having used this instrument during the years of the crisis. In the case of Spain, this percentage is higher (29.9%) which may suggest that the bank credit constraints for Spanish NFCs have been stronger than those experienced by the NFCs of the Eurozone as a whole.

The most striking case is that of the French NFCs. Even though these companies, as noted above, are those that use capital markets to a greater extent, there is a significant drop in the percentage of firms that report having used this financial instrument during the crisis. By size, large companies, as expected, have had more access to this instrument.

Nearly 29% of the Eurozone NFCs, that report that issuing equities is a relevant instrument in their financial structure, has raised funds through equities. German NFCs are those that have used this instrument in a greater extent (55.9%) followed by the Spanish ones (30.8%). Again, the French NFCs show the lowest percentage (16.1%).

Finally, as for the trade credit is concerned, the clearest conclusion from the data contained in Table 2 is that this instrument is by far the most widely used by NFCs. Nearly 70.5% of the Eurozone NFCs, that consider this instrument as, have used the trade credit during the years of the crisis.

In short, our data show, first, the strong dependence of the Eurozone NFCs on bank credit and, second, the low demand of external financing sources (measure as the percentage of firm that demand instruments) during the years of the crisis.

In the next section, we will show the amount of resources that NFCs have risen through each instrument both before the crisis and during the years of the crisis. We will focus only on the bank credit, the issuance of debt securities and the issuance of equities. We do not examine the behaviour of trade credit due to the lack of data for the Eurozone as a whole. The source of information that we have used is the Financial Accounts compiled by the ECB for the Eurozone countries. Unless otherwise stated all data reflect transactions in financial assets or liabilities

## ***2.2.-Evolution of the credit raised through the financial institutions***

Before presenting the results a methodological clarification has to be made. The information on credits to NFCs provided by the financial accounts compiled by the ECB includes all credits that these companies receive from the rest of the economy<sup>12</sup>. The most significant part of these loans, logically, is granted (???) by financial corporations, especially Monetary Financial Institutions. However, the NFCs sector itself has strong lending activity, as it can be seen through the assets of this sector<sup>13</sup>. These credits are credits within a business group, both domestic and cross-border, and lending by non-financial corporations to other sectors. In order to make clearer this lending activity of NFCs and have a better understanding of the credit received by NFCs, we have removed from the information on credits raised by NFCs (liabilities) the information concerning the credits (assets) to other sectors granted by NFCs. In Figure 7 we present the evolution of credit related to GDP that NFCs obtained during the whole period considered. Figure 8 shows the same data grouped into two periods, namely the years prior to the crisis (1999-2008) and the years during the crisis (2009-2014). In this Figure data are average values of the transactions (flows) made by NFCs in relation to GDP, for each sub-period.

As can be seen from Figure 7, the evolution of credit shows a downward trend for the whole of the Eurozone at the beginning of the period, being more pronounced, for the German and French NFCs. During these early years, the Spanish NFCs show a stable trend, even though they raise significantly more resources through this instrument than the rest of the NFCs in the Eurozone. The turning point occurs in both the whole of the Eurozone and the countries that we are studying in 2004, when there is a growing trend in the amount of credits raised

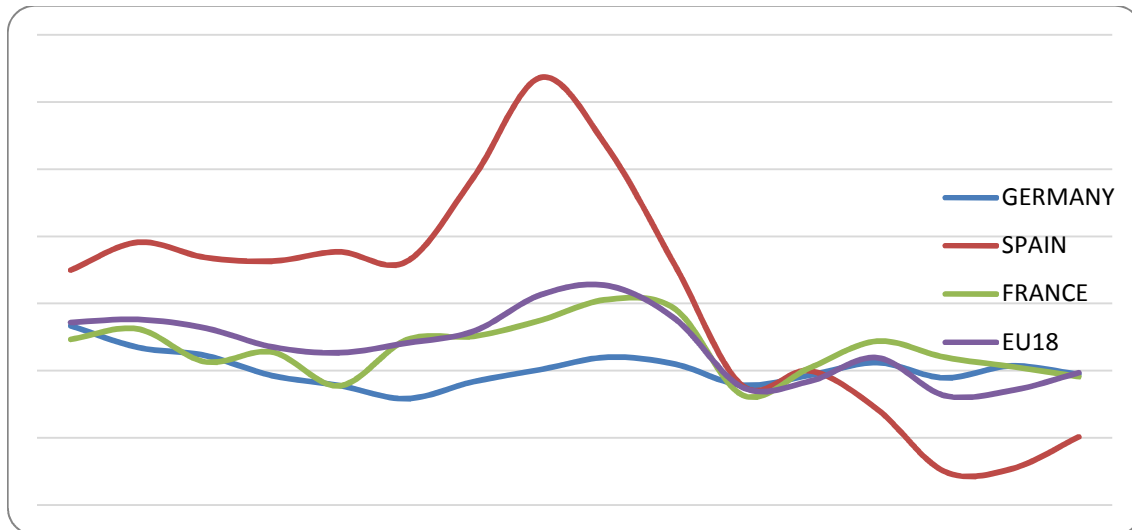
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<sup>12</sup> Data on credits to the NFCs have been obtained from the heading AF.4 of the Financial Accounts.

<sup>13</sup> During the years preceding the crisis, the loans granted by NFCs to other sectors amounted, as average, to 2% of GDP for the whole of the Eurozone. In the period 2009-2014, this percentage fell to 0.92% of GDP. By country, the German NFCs present the lowest percentages which are equivalent to 0.9 and 0.8% in each of our sub-periods, respectively. The French and Spanish NFCs have slightly higher percentages than the whole of the Eurozone. For the pre-crisis years, these loans amounted to 3% and 2.6% of GDP, respectively. During the years of the crisis, the values of these percentages are 1% and 1.2% of GDP, respectively.

by NFCs. This growing trend continues until the outbreak of the crisis in 2008. After this date, raising resources through this instrument drops dramatically, especially in Spain.

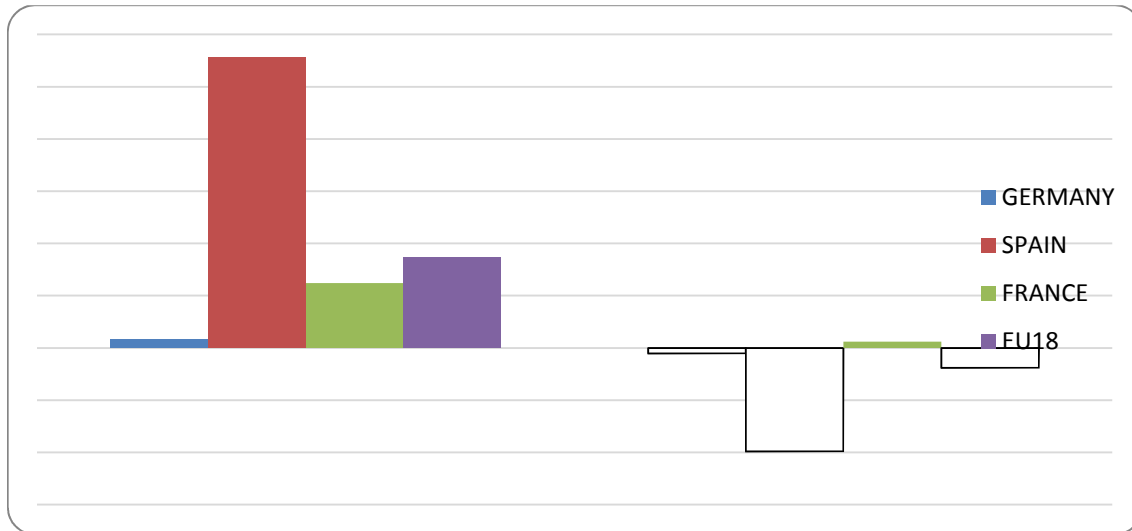
Figure 7. Evolution of bank loan over GDP. 1999-2014. Expressed as percentages of GDP.



Source: ECB and own elaboration

Figure 8 shows that in the years prior to the crisis the external resources raised by NFCs through credits granted by financial institutions were equivalent, on average values, to 3.45% of GDP in the EU-18. In Spain, this percentage was 11.1% while in Germany it was significantly lower (0.34%). The French NFCs raised bank credits (2.5%) more similar to those of the EU-18.

Figure 8. Evolution of bank loan over GDP. 1999-2008 and 2009-2014. Average values expressed as percentages of GDP.



Source: ECB and own elaboration

The crisis induces a drastic change in the raising of funds through this financial instrument. During the period 2009-2014, the EU-18 NFCs exhibit a negative average rate of -0.76%. This fall is also detected among the German NFCs, with an average rate of -0.21%. The deleveraging process is particularly strong among the Spanish NFCs. The average value over these years is equal to -3.96% of GDP. Only the French NFCs continue to show a positive value, equivalent to 0.2%, although significantly lower than during the period of expansion.

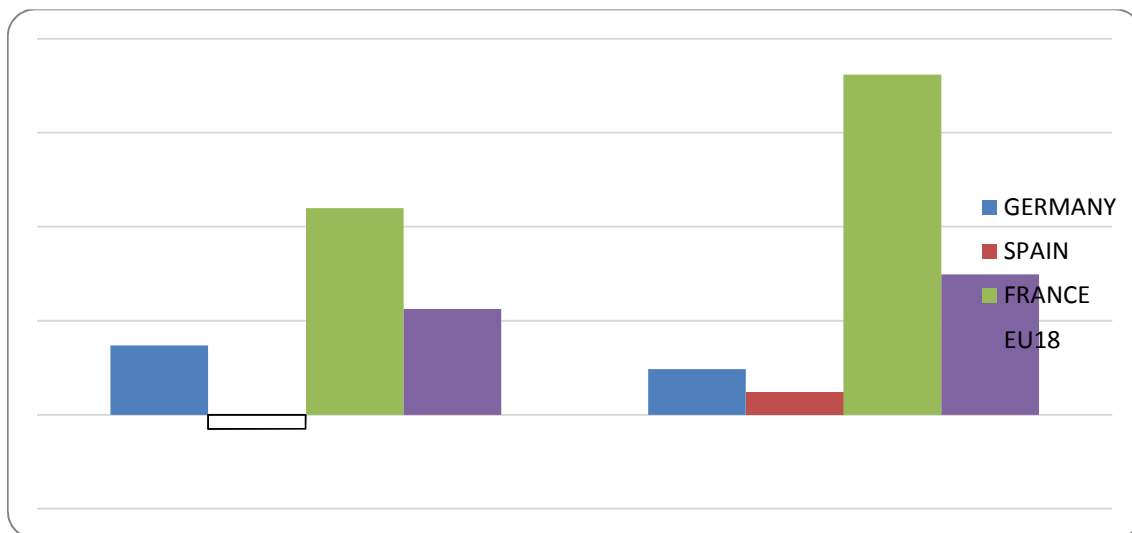
### ***2.3.-Evolution of resources raised through issuing debt securities***

In Figure 9 data on resources obtained in capital markets through the issuance of debt securities are presented. As in the case of banking credit, data are average values for each period, of the transactions (flows) made by NFCs in this financial instrument as a percentage of GDP.

Comparing the two sub-periods as in Figure 8, it can be observed that the pattern followed by the raising of external resources through this instrument is inverse to that observed in bank credit. During the period of the crisis, the role of the former instrument has increased

slightly as compared to the boom years. NFCs in the EU-18 have obtained financial resources through capital markets equivalent to 0.75% of GDP, marginally higher than that obtained between 2000 and 2008 (0.56% of GDP). However, the issuance of debt has become one of the instruments through which NFCs have obtained external resources during the years of the crisis.

Figure 9. Evolution of Debt securities. 1999-2008 and 2009-2014. Average values expressed as percentages of GDP.



Source: ECB and own elaboration

By country, the French NFCs exhibit a more active role in raising funds by issuing debt than the rest of the countries. In the years prior to the crisis, French companies obtained resources through this instrument equivalent to 1.1% of GDP. During the years of the crisis, this ratio rose to 1.8%<sup>14</sup>. In the Spanish case there is a very modest change. The Spanish NFCs, which were deleveraging in this instrument during the boom years, borrowed the equivalent to 0.1% of GDP (on average values) during the period 2009-2014. Again, the German NFCs have some singularities. During the boom years they raised, on average, 0.4%

<sup>14</sup> If we compare these results with those presented in Table 2, the conclusion that can be drawn is that only a small percentage of French NFCs have obtained resources during the years of the crisis.

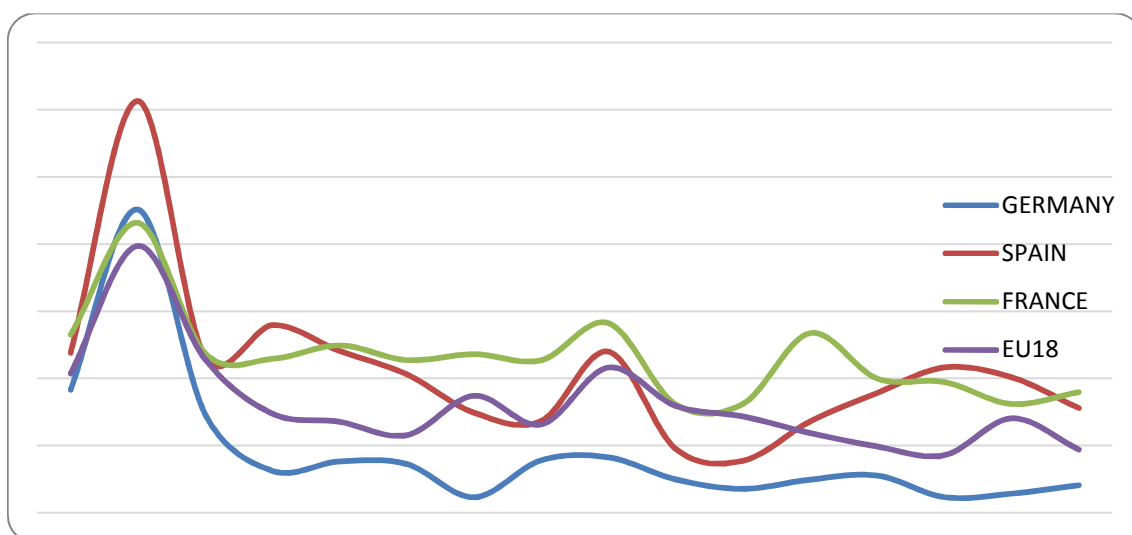
of GDP while during the years of the crisis they decreased their use of this instrument. Between 2009 and 2014 this percentage was 0.24% of GDP.

The relative weight of this instrument in terms of balance, increased slightly during the crisis years. The stock of debt-to- GDP, increased by almost three percentage points, from 7.2% to 10%, for the whole of the EU18. In Spain this ratio remained constant at 1.6% while in Germany it increased by one percentage point to 5% and in France by five percentage points to 22% of GDP.

#### 2.4.-Evolution of the resources raised through equity issuance

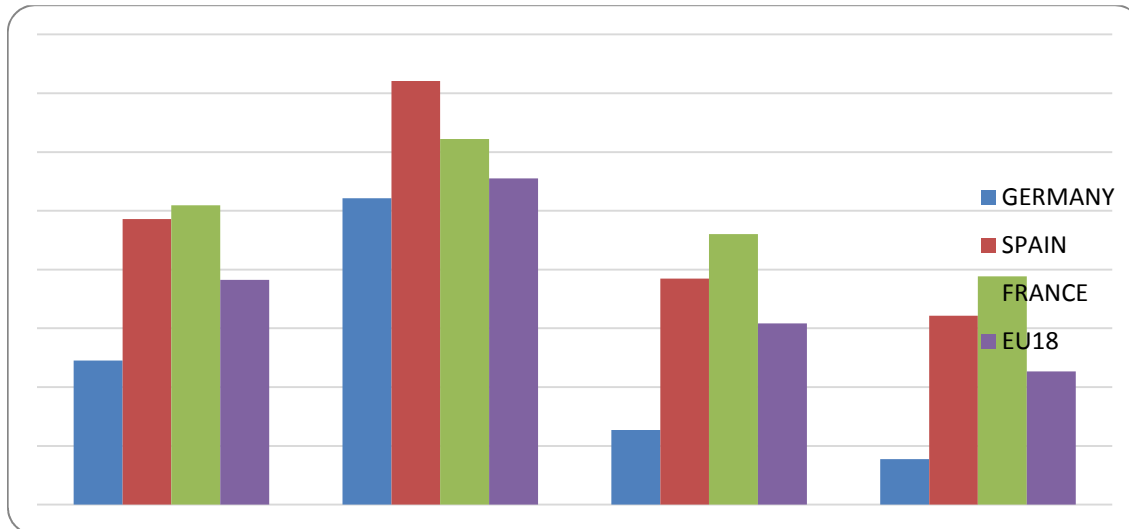
Figure 10 presents the evolution of the funds (as percentage of GDP) raised through the issuance of equity by the NFCs. Figure 11 presents the amount of resources that NFCs have obtained through capital increases in each of the sub-periods under consideration. The data, again, are average values of the transactions (flows) made by NFCs in this instrument.

Figure 10. Evolution of resources raised by equity issuance. 1999-2014. Expressed as percentages of GDP.



Source: ECB and own elaboration

Figure 11. Evolution of resources raised by equity issuance. 1999-2008 and 2009-2014. Average values expressed as percentages of GDP.



Source: ECB and own elaboration

Figure 10 shows that at the beginning of the period there was a sharp drop in the resources raised through this instrument. This fall occurs in both the whole of the Euro area and the three countries that we are studying. From the year 2002, however, the volume of funds raised stabilizes (with some peaks). Even though the crisis affects this instrument, it does not induce such a dramatic change as that observed in the credit change. In Figure 11 we can see more clearly what we want to stress.

The NFCs in the EU18 raised resources through this instrument equivalent to 3.8% of GDP which is very similar to that raised through credits. This percentage, however, is strongly influenced by the early years (1999 and 2000) when the amount of resources raised through this instrument was very high, as shown in Figure 10. If we remove the bias of the early years, the average percentage is 3% of GDP. Between 2009 and 2014 this percentage fell to 2.3%.

By country, the French and Spanish NFCs are those that have obtained more resources through this instrument. In the period 1999-2008, the French NFCs raised resources equivalent to 5% of GDP, while the Spanish ones obtained the equivalent to 4.9% of GDP. It is worth recalling the comments that were made in the previous paragraph concerning the bias induced by the early years of the period. If we remove this bias, the ratios are 4.6% and 3.9%

of GDP, respectively. During the years of the crisis, these ratios dropped to 3.8% and 3.2%, respectively. The German NFCs raised fewer resources. During the years before the crisis, the percentage was 2.45% and during the years of the crisis fell to 0.8% of GDP.

Most of the resources raised by NFCs through this instrument are obtained by the issuance of non quoted equities.

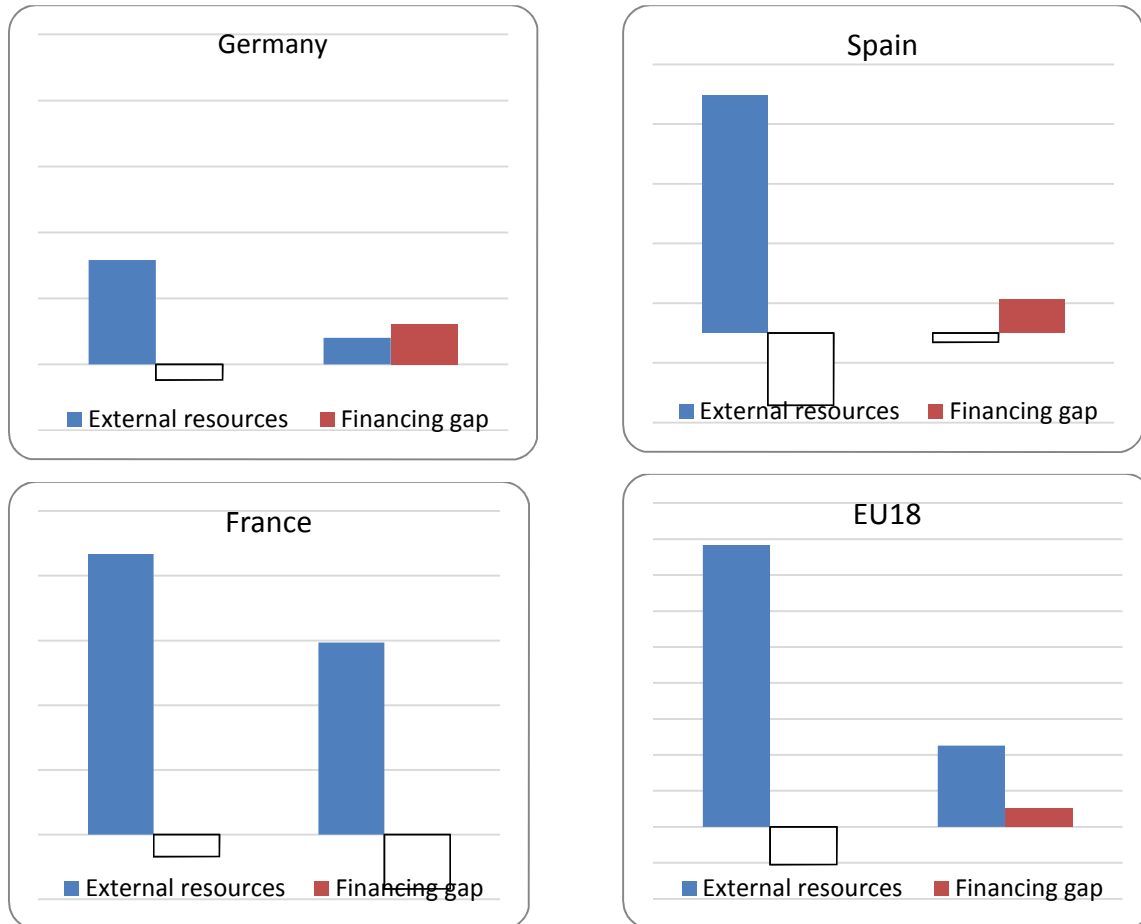
The funds which were raised through the issuance of equity during the years prior to the crisis and for the whole of the Eurozone had relatively similar weight to those raised through bank credit. The exception to this rule occurs with the Spanish NFCs. Before the crisis, bank credit was by far the most important financing source for these companies. During the years of the crisis, however, the issuance of equities became the main external source of financing for all NFCs of the Eurozone.

### ***3.- Financialisation of Non-Financial Corporations?***

The data presented so far suggest that there is an ambiguous relationship between the NFCs' financial needs related to their productive activity and, the external resources that these companies raised. To appreciate more clearly this relationship Figure 12 presents the "financing gaps" and the external resources that have been raised by the NFCs of both the whole of the Eurozone and the three countries under study, during the two sub-periods that we are considering.



Figure 12. Financing gaps. 1999-2008 and 2009-2014. Average values expressed as percentages of GDP.



Source: EBC and own elaboration

As it can be seen, during the period before the crisis (1999-2008) the financial needs of the NFCs of the whole of the Eurozone were equivalent, on average, to 1.05% of GDP. During these years, however, the external resources raised by NFCs were, in average values, equivalent to 8% of GDP in the whole of the Eurozone, i.e. almost 7 percentage points of difference.

By country, Spanish NFCs are those that have obtained most external resources. Their "financing gap" was equivalent, on average for the period, to 4.8% of GDP. However, they were raising external resources equivalent to 16% of GDP, i.e. 11 percentage points of difference. The French NFCs, albeit in somewhat lower percentage, show a similar pattern. Their "financing gap" during the years before the crisis amounted to 0.7% of GDP, while they

were raising external financial resources equivalent to 8.7% of GDP. The German NFCs are the exception to this rule. Not because they had a different behaviour, but rather because the intensity with which they raised external funds was lower. Their "financing gap" was equivalent to 0.48% of GDP, while the external resources that they were raising were, on average for the period, 3.1% of the German GDP.

The crisis is a radical change, concerning both the raising of financial resources and the "financing gaps". These "gaps", except in the case of the French NFCs, became positive, while the raising of external resources decreased dramatically. As shown in Figure 12 the "financing gap" became positive for the whole of the Eurozone, with an average value during the period 2009-2014 equivalent to 0.5% of GDP. The process of raising external resources lost intensity at the same time as other instruments other than bank credit gained weight. During this period the Eurozone NFCs Eurozone were raising funding equivalent to 2.3% of GDP.

By country, the Spanish NFCs show a greater change. The financing needs of these companies became positive with an average value equal to 2.2% of GDP and the external resources raised by these firms decreased by 0.6 percentage points of GDP. The "financing gap" of the German NFCs also became positive with an average value of 1.2% of GDP. However, during these years the German companies raised external resources equivalent, in average, to 0.8% of GDP. Finally, during the years of the crisis, the French NFCs had financial needs equivalent to 1.7% of GDP and they raised external resources equivalent to 6% of GDP:

The question that arises from the data is why is there not a relationship between the financing gaps of NFCs and the financial resources that they raise from other sectors? The answer seems to be clear: the demand for external resources is due not so much to cover the financing needs related to the NFCs' productive activity, as to cover other needs, primarily the acquisition of financial assets.

Figure 13 presents the evolution of three time series. The first series shows the evolution of the "financing gaps" of the NFCs. The second displays the evolution of the acquisitions of

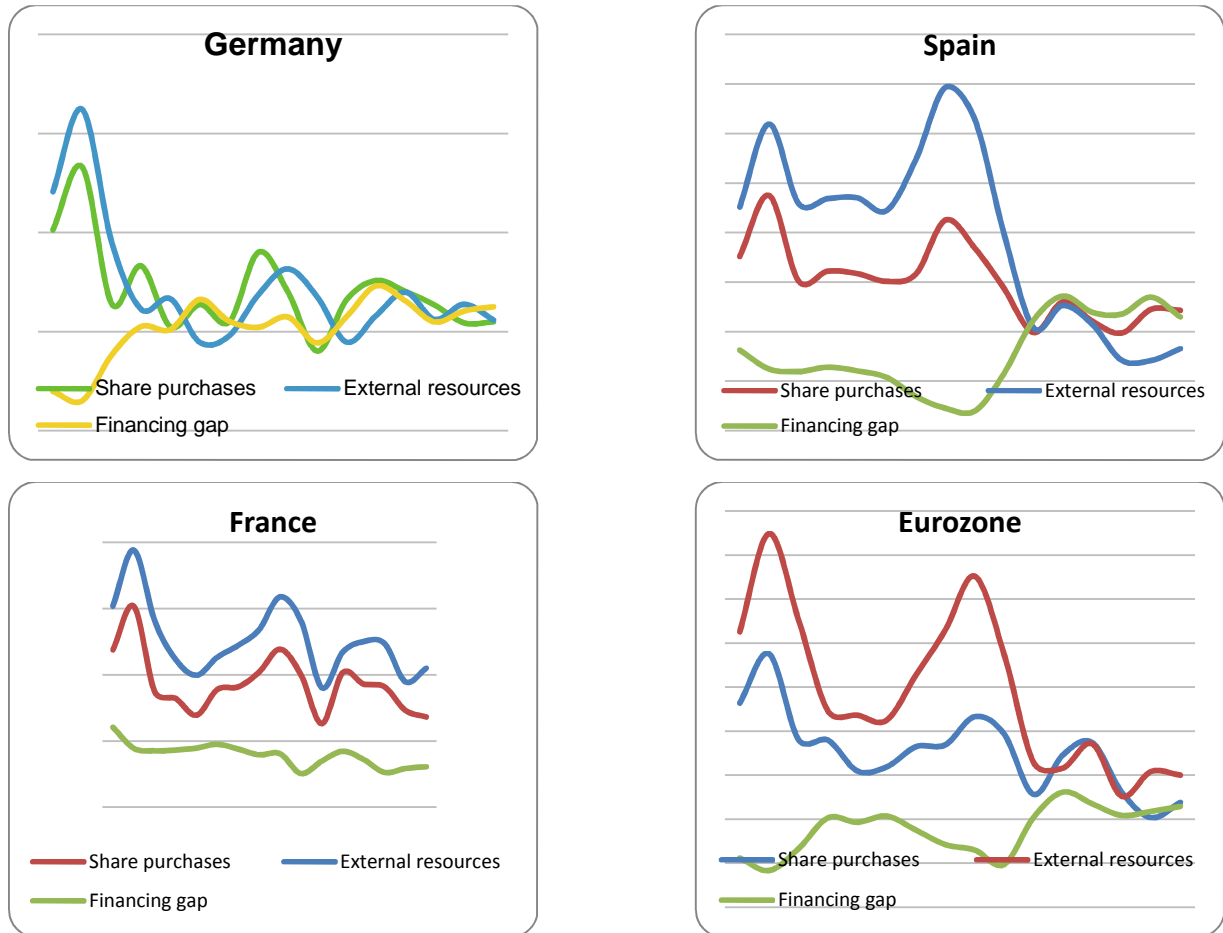
equities<sup>15</sup> by NFCs and, finally, the third series presents the evolution of the external funds<sup>16</sup> raised by the NFCs. These series are financial transactions (flows) as percentage of GDP. The existing symmetry in the evolution of these two series in the whole of the Eurozone, Spain and France, especially until the outbreak of the crisis, is striking. The raising of external funds seems to better correlate with the acquisitions of this type of financial assets than with the financing gaps. Again, the German NFCs have some peculiarities.

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<sup>15</sup> In these Figures we only focus on the acquisition of equities by NFCs since this type of financial investment is the one that has the greatest weight in the total financial assets of NFCs. Furthermore, this type of asset has been identified with the financialisation of non financial corporations (Epstein, 2015).

<sup>16</sup> External funds are equal= bank loans+ debt issues + equities issues

Figure 13. Evolution of financing gaps, equities purchases and external resources of NFC. Expressed as percentages of GDP.



Source: EBC and own elaboration

In the years previous to the crisis, the NFCs in the Euro area used, on average, 52% of the external financial resources that they had raised to purchase equities. In France, this percentage was 57% and in Spain 46%. The German NFCs are an exception to this rule. The German companies also participated in this process, although with less intensity. Moreover, since 2003 these companies have positive financing gaps (see Figure 13) which allowed them to acquire assets without the need of raising as many external resources as the Spanish and French companies.

The crisis does not end the NFCs strategy of acquiring assets but rather it has induced a decline in the intensity of the acquisitions and, above all, a less dependence on external funds

to buy those assets. In the latter is due to, among other factors, the change in the NFCs financing gap.

How can be explained this activity of the NFCs? The answer to this question is not easy since the range of possible scenarios is wide. Moreover, we cannot rule out, if we look at the size of the companies, that the bulk of these acquisitions of financial assets have been made by large corporations. One possible explanation, however, might be that the NFCs in the Eurozone, through this process of acquisitions, have changed its size to better compete in the global markets.

An indicator which could support this hypothesis is provided by the stock of FDI of the NFCs of the European countries under study. The stock of FDI of German NFCs in 1999 was 16% of GDP. For the French NFCs this percentage was 19%, one percentage point less than that for the Spanish NFCs (20%). In 2012, however, these percentages had increased to 32% the German NFCs; for the French NFCs to 47% and for the Spanish NFCs to 46%. These data reveal the intensity with which these NFCs have been expanding their international activities during the years previous to the crisis.<sup>17</sup>.

The excess liquidity in the financial markets during those years had contributed to accelerate a process of concentration of companies that, under normal (less liquid) circumstances probably would not have occurred with such intensity over such a short period of time. If this hypothesis is correct, we could not speak of a financialisation, strictly speaking, of the European NFCs. The external resources raised by NFCs would be responding, at least partially, to a strategy of growth of business (both outwardly and inwardly), rather than to the aim of quick returns obtained by speculative investments. However, these processes of concentration of business would have been contributing to raise the price of certain financial assets and thus feed the bubble in some segments of financial markets.

Accepting the plausibility of this hypothesis it remains to be seen whether these investments justified the excessive indebtedness of many of the NFCs. This question is particularly

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<sup>17</sup>Data on FDI have been provided by the OECD databases

relevant as far as the Spanish NFCs are concerned since they, as noted above, accumulated by far the largest volume of debt over those years.

Another possible hypothesis is that the NFCs developed the strategy of acquiring assets as a way to improve profitability. In this case the purchase of assets is driven by the expectations of financial returns, rather than by expectations of future returns from gains in market shares and productive activities. In this case the asset acquired is at the same time the collateral of the credit. The revaluation of the assets, at a time when there was explosive growth of the financial activity, and its subsequent sale at a higher price, allow NFCs to pay their debt and make profits. There is sufficient evidence to believe that during the years of the "bubble" some of this may have happened. However, it is difficult to believe that these speculative strategies have been key strategies during the years preceding the crisis. The strong likelihood is that both hypotheses are complementary rather than alternative. The financial sector, and particularly the banking sector facilitated these strategies through credits, thus inflating profit expectations.

In any case, and as far as this document is concerned, the growing "disconnect between credit and income" to which we have referred in the first part of this work, could find an explanation in the existing disconnect between the "financing gaps" and the demand for external financial resources. In the pre-crisis years, when these gaps were negative, most of the resources raised by NFCs in the financial markets remained in those markets. These resources (liabilities) were channelled towards the acquisition of equities (assets) rather than to the financing of the GFCF. During the years of the crisis, when these gaps became positive, the NFCs became net lenders to the rest of the economy, so that they financed with their own funds their productive activity. So, to the extent that a significant proportion of credits raised by the NFCs did not leave the financial sphere, but rather these credits became financial assets, the connections between these credits and the evolution of GDP (through the investment channel) would be weakened sufficiently not to be statistically significant in macroeconomic models.

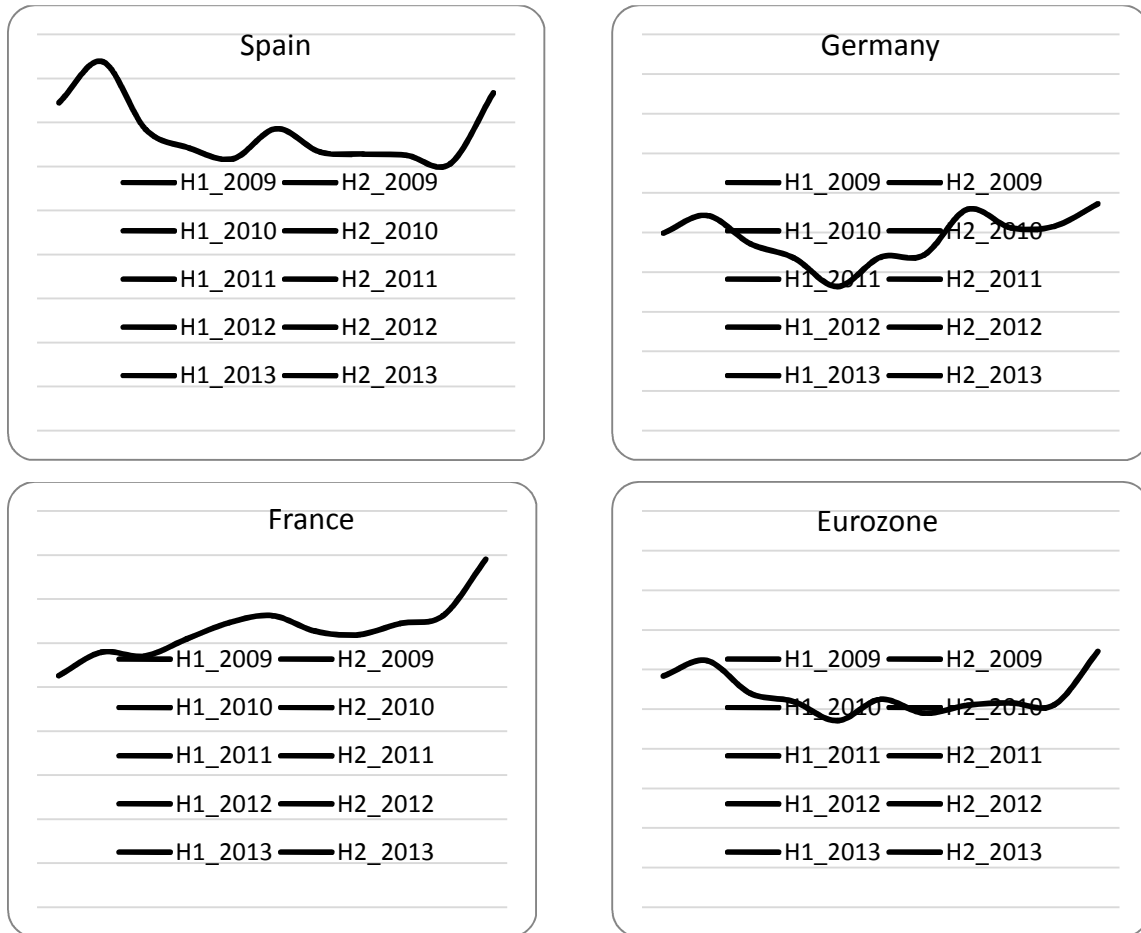
#### ***4.- The demand for bank credit during the crisis***

Other FESSUD working papers noted some of the problems that have arisen in the credit transmission channel (Creel, Hubert, and Labondance 2014). These problems have induced a loss of effectiveness of the monetary policy implemented by the ECB. However, little attention has been paid to the potential effect of the drop in the demand for bank credit on the effectiveness of the monetary policy. From the data presented in the previous sections one can infer that this behaviour the demand may be relevant to better understand some of the difficulties faced by the ECB monetary policy to boost the economy.

As far as demand is concerned, Figure 14 shows the percentage of NFCs that applied for bank credits in the whole of the Eurozone and in the three countries under study during the period 2009-2014. In the Eurozone, the percentage of NFCs that applied for bank credits fell continuously since the first semester of 2009 (when 29.2% of the Eurozone NFCs applied for a bank credit) until the first semester of 2011 (when that percentage was 23.5%). Since that date, the demand for bank credit started to recover slightly, reaching in the first semester of 2014 the highest value in terms of percentage of NFCs that applied for bank credits: near 32.3% of the Eurozone NFCs reported having applied for bank credits. Despite these fluctuations, it could be considered that the percentage of firms that applied for bank credits has been fairly stable in the Eurozone during the period we are considering.

There are, however, significant differences across countries in the percentage of companies that applied for bank credits during the crisis. Germany is the country with the lowest proportion of NFCs applying for this type of instrument during the period 2009-2014. Only 24% of the German NFCs requested bank loans, on average, in that period. These percentages are higher among Spanish and French NFCs, being 34% and 31.5%, respectively. This result is expected considering the higher dependence of Spanish, and to a lower extent French, NFCs on bank credits

Figure 14. Demand for bank credits. 2009-2014. Half-yearly data. Percentage of NFCs applying for bank credit.



Source: SAFE and own elaboration

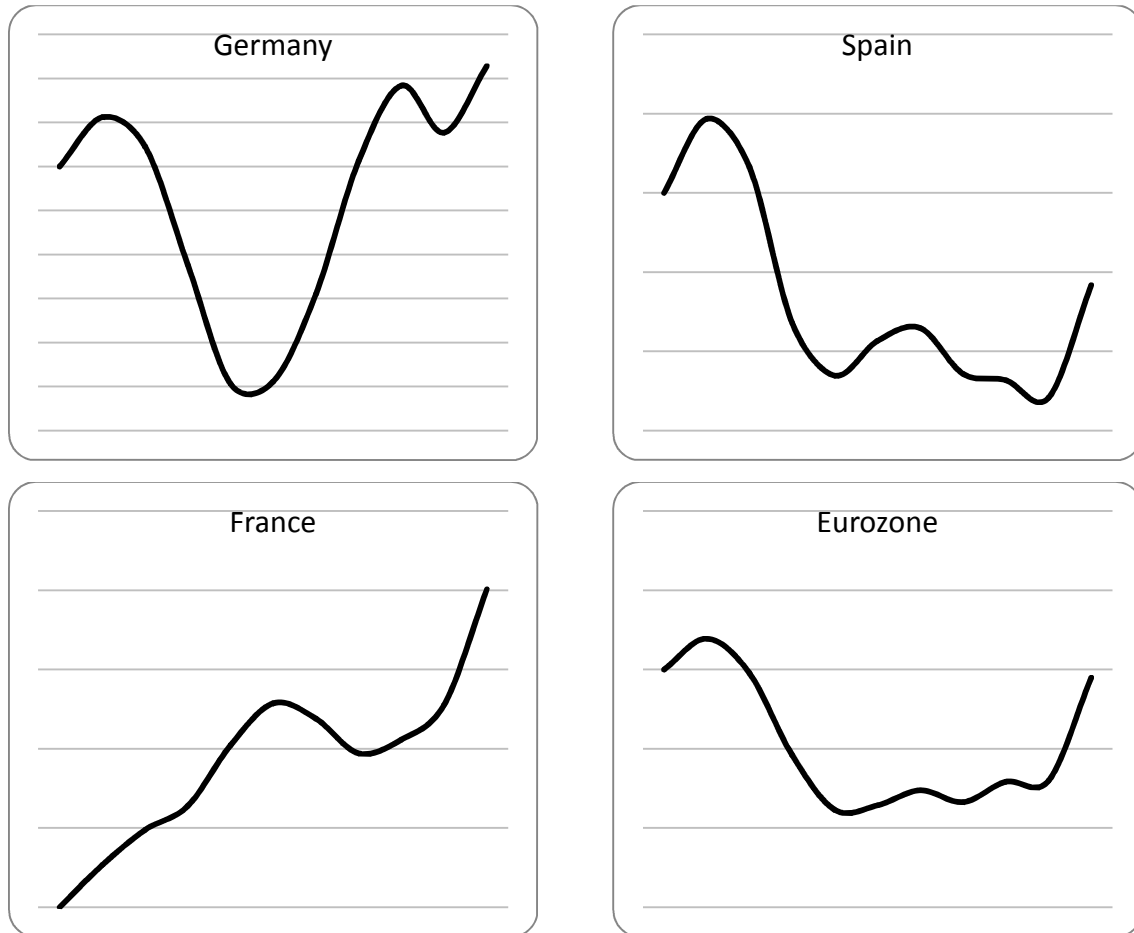
Figure 15 provides a complementary approach to the previous one. It allows us to better understand the evolution of the demand for bank credit during the crisis. This Figure presents the accumulated variation of the demand for bank credit in the Eurozone and in the three countries under study during the period 2009-2014. For the calculation of the accumulated variation of credit demand we have used the information provided by the SAFE on the percentage of NFCs that have applied for bank credit in each semester. We have calculated the difference in the percentage of NFCs applying for bank credit semester over semester with respect to the first semester. Then, we have accumulated those differences.



It is noted that the accumulated variation of the demand for bank credit in the Eurozone NFCs starts to decrease in the second half of 2009 and it decreases continuously until the first half of 2011. From that date, the accumulated variation of the credit demand remains stable. A slight recovery starts in the second half of 2013 reaching a level similar to that of the first semester of 2009 in early 2014. This pattern is reproduced in the case of Spain, although this country has not yet achieved the level of the year 2009. In Germany the accumulated variation of the demand for bank credit also drops since the year 2009 but it starts a steady recovery in the first semester of 2011 reaching the level of the first semester of 2009 in the second half of 2012. France shows a markedly different pattern from that of the countries just discussed. In France the accumulated variation of the demand for bank credit increases continuously throughout the whole period analyzed.

The evolution of the demand for bank credit measured by both indicators, then, suggests a contraction in demand for credits in the whole of the Eurozone NFCs with differences across countries.

Figure 15. Accumulated variation of the demand for bank credit. Accumulated percentage of NFC applying for bank credit.



Source: SAFE and own elaboration

The fall in demand for credit might be due to various reasons, including restrictions on the supply of credit that NFCs might have faced. However, as we have already noted previously, half of the NFCs reported not having used this financial instrument during the years of the crisis because they had sufficient own funds. The increase in the NFCs self-financing capacity, at least in the Eurozone is more related to a decrease in GFCF (less need for resources) than to an increase in the gross savings (higher availability of own funds). The decrease in GFCF, considering the ECB monetary policy, can only be related to a (negative) change in the expectations of future investment returns. This change, in turn, could induce

an autonomous contraction in the demand for bank credit, i.e., a contraction which is unrelated to the conditions of the bank credit supply.

The change in business expectations may also have acted as a brake to the strategy of resizing of the Eurozone NFCs, both inwardly and outwardly. The slowdown, in comparison to that of the years immediately before the crisis, in the NFCs' acquisition of equities, which were partly financed by bank credit, may also have induced a reduction in the demand for credit.

The current crisis may be understood as a "crisis of balance". The deleveraging process of households and corporations that started in the aftermath of the crisis limited the options available to the monetary policy. This was due to the fact that the expansion of aggregate demand was restricted not so much because of the lack of supply of credit, but because of the anaemic credit demand.

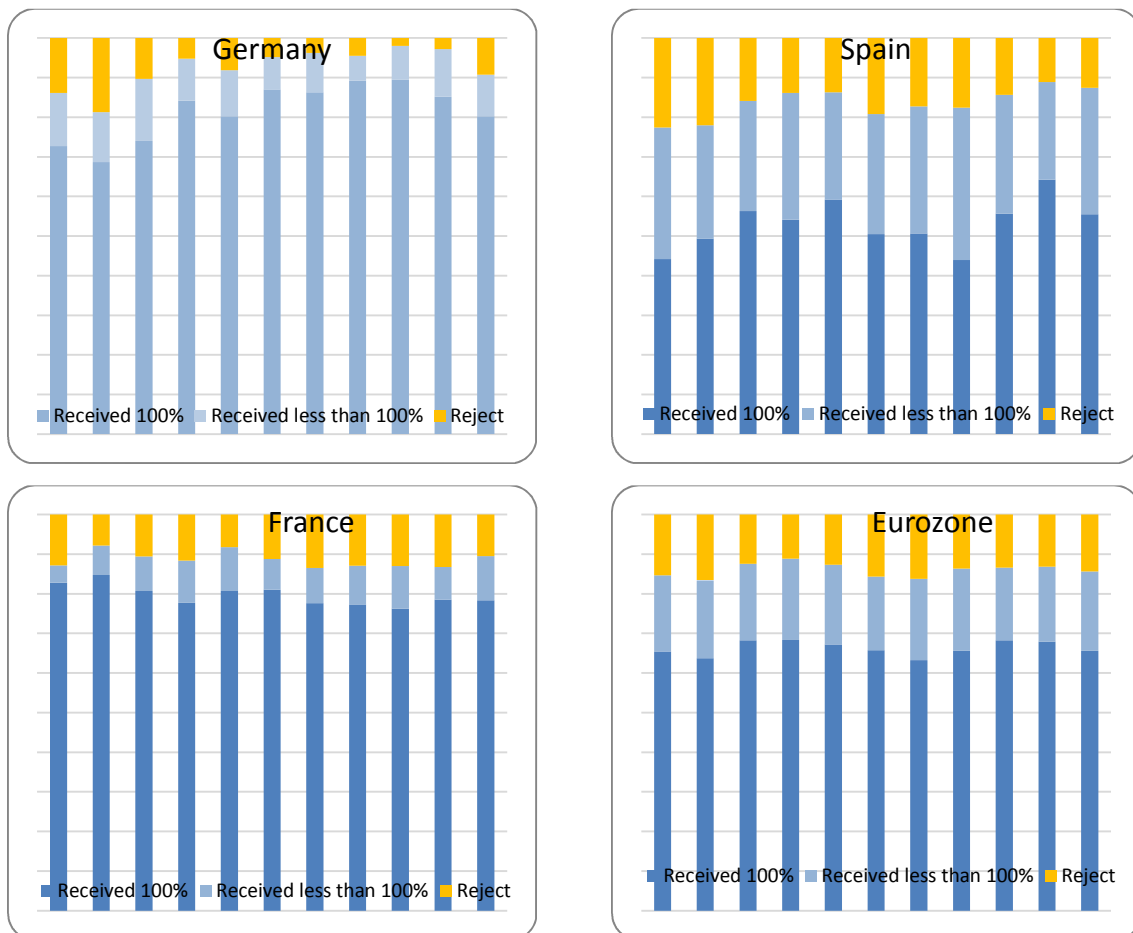
In short, there are several evidences that lead us to believe that underlying the behaviour of credit demand during the years of the crisis were several factors other than credit supply restrictions caused by the banking sector problems. This is not to say, however, that these restrictions were not present. Indeed, data from the SAFE suggest the existence of credit supply restrictions.

The credit supply restrictions can be examined through various sets of indicators using the information contained in the SAFE. The first set of indicators includes different measures related to the rate of success of the firms that applied for a bank loan. The second set of indicators is directly related to the changes in the conditions of access to credit for the NFCs, in particular, they refer to changes in the interest rates and other financial costs and to the changes in *collateral required by the bank for a loan*.

Figure 16 displays the evolution of the first group of indicators for the whole of the Eurozone and for the three countries that we are studying, during the period 2009-2014. It shows the percentages of NFCs that, having applied for a bank loan, they received the full amount requested, less than the full amount requested or they had their applications rejected. As may be seen, the German NFCs had the highest rate of success. Between 61.2% (in the

second half of 2009) and 86.7% (in the first half of 2013) of the applicant companies managed to meet their demands. In France, these percentages were quite similar, ranging from 72.5% (in the first half of 2013) and 82.1% (in the second half of 2009). In Spain, these percentages dropped significantly to between 41.3% (in the second half of 2012) and 62.7% (in the second half of 2013). Correspondingly, the Spanish NFCs were exposed to a higher rate of rejection in their bank loan applications. The rejection rate was, on average for the period under study, 15.7% for Spanish companies. This proportion dropped to 10.9% and 7% in France and Germany, respectively.

Figure 16. Restrictions on credit supply. Percentage of NFC that received 100%, less than 100% or did not received (reject) the quantity applied as bank loan.



Source: SAFE and own elaboration

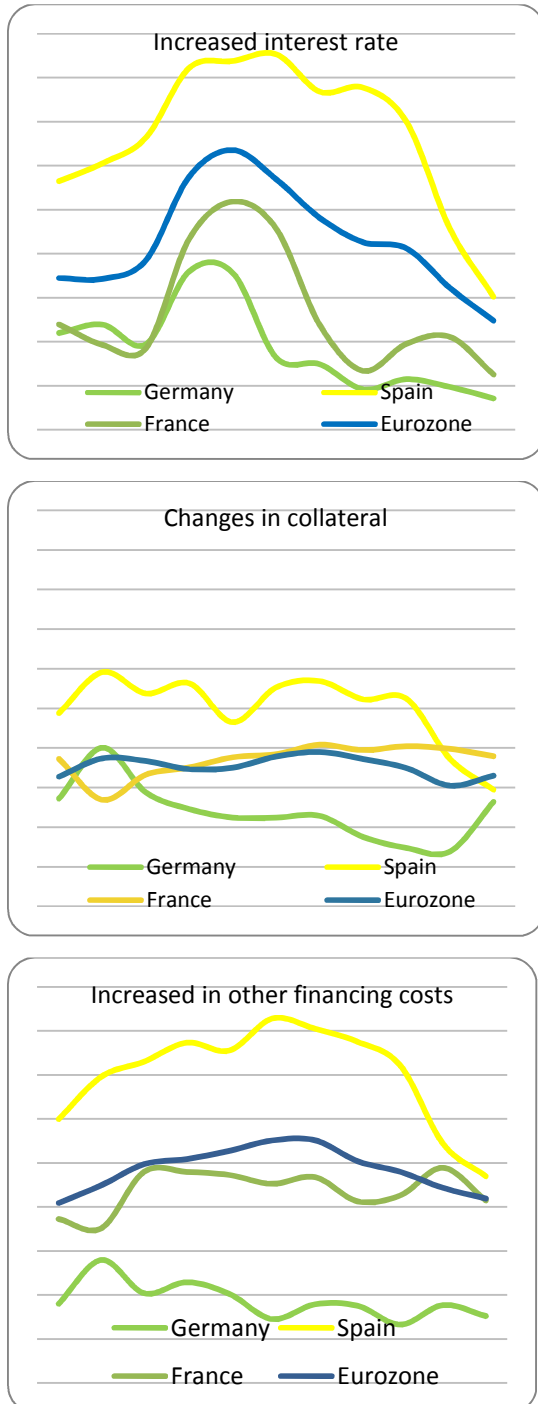
Figure 17 shows the evolutions of the second group of indicators above-mentioned. It presents the changes in the interest rate and other financial costs and in the collateral required for bank loans during the period 2009-2014 in the Eurozone and the three countries under study.

Regarding the interest rate, Figure 17 shows the percentage of NFCs that reported having experienced an increase in the interest rate offered by their bank. As may be seen, Spain has the highest percentage of NFCs that report having suffered increases in the interest rate offered by their banks. At the most critical point (second half of 2011) near 85.3% of the Spanish NFCs experienced increases in the interest rate offered by their bank. This percentage was 63.6% the NFCs in the whole of the Eurozone. At the same time, only 35.7% and 51.9% of German and French companies suffered increases in their interest rate, respectively.

Similar conclusions are obtained considering financing costs other than the interest rate. Again, the Spanish NFCs seem to have been under more restrictive conditions from the supply side than the French and German companies.

It should be noted, however, that from the second half of 2012 a process of convergence in the conditions for granting loans to companies among the European is appreciated. This finding is particularly true in the case of the collateral *required by the bank for a loan*.

Figure17. Restrictions on credit supply II. Percentage of NFC reporting having experienced an increased in the interest rate, in other financing costs or in the collateral.



Source: SAFE and own elaboration

### **3.- Conclusions**

The paper has shown that an important change occurred since the 90s in the relationship between the financial and the real sector in the Eurozone. In the 70s and 80s -when credit over GDP was still moderate- credit growth still had a positive effect on real growth, but thereafter during the financialization heydays when credit reached a high level, that link broke apart. This so called “vanishing effect” is not a new finding, but we have been able to confirm it for the Eurozone countries since the 90s. Moreover, this result is robust for the recent critique raised about other studies findings showing a linear or quadratic negative effect of finance on growth.

Having analyzed financing gaps and the external resources raised by NFC during the last decade, we can conclude that a main reason explaining why increasing financial deepening stopped to have a positive effect on growth might be due to NFCs having used an important part of their external resources for the acquisition of securities instead of financing real investment. This process of NFC financialization and the observed increase in their self-financing ability are two key reassuring indicators showing the disconnection of NFC financial behaviour with their investment decisions.

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## **THE ABSTRACT OF THE PROJECT IS:**

The research programme will integrate diverse levels, methods and disciplinary traditions with the aim of developing a comprehensive policy agenda for changing the role of the financial system to help achieve a future which is sustainable in environmental, social and economic terms. The programme involves an integrated and balanced consortium involving partners from 14 countries that has unsurpassed experience of deploying diverse perspectives both within economics and across disciplines inclusive of economics. The programme is distinctively pluralistic, and aims to forge alliances across the social sciences, so as to understand how finance can better serve economic, social and environmental needs. The central issues addressed are the ways in which the growth and performance of economies in the last 30 years have been dependent on the characteristics of the processes of financialisation; how has financialisation impacted on the achievement of specific economic, social, and environmental objectives?; the nature of the relationship between financialisation and the sustainability of the financial system, economic development and the environment?; the lessons to be drawn from the crisis about the nature and impacts of financialisation? ; what are the requisites of a financial system able to support a process of sustainable development, broadly conceived?'

## THE PARTNERS IN THE CONSORTIUM ARE:

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3	School of Oriental and African Studies	UK
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