UNIVERSITE CATHOLIQUE DE LOUVAIN

LOUVAIN SCHOOL OF MANAGEMENT

And

KATHOLIEKE UNIVERSITEIT LEUVEN

FACULTY OF ECONOMICS AND BUSINESS

Bank deleveraging:
Impact on economic growth in the euro area

How does credit granted to the non-financial private sector influence GDP growth

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Thesis submitted to obtain the degree of

Master in Toegepaste Economische Wetenschappen: Handelsingenieur

Master Ingénieur de Gestion

Major Accountancy en Financiering

Promoter (KUL): Prof. Kristien Smedts

Co-Promoter (UCL): Prof. Luc Henrard

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Bank deleveraging: Impact on economic growth in the euro area

How do credit granted to the non-financial private sector influences GDP growth

This study analyses the impact of bank deleveraging on economic growth in the euro area by means of an analysis on a panel of data composed of sixteen euro area countries over eleven years. It finds that a reduction in the loans granted to the non-financial private sector is harmful for economic growth because it affects mainly two of its major components, namely consumption and investment. These dynamics seem unaffected by the crisis factor even if the 2008 financial crisis has downturned economic activity in Europe. The results also show that the contraction of lending has different implications in core and in peripheral countries.

However, in the wider context of the overall deleveraging process, loans and more broadly speaking asset reduction has not been the top priority since banks have so far favoured capital increase measures. This tendency is nonetheless likely to be challenged in the future as manoeuvring room shrinks for banks that have difficulties to raise more capital and that have already exhausted all non-core asset reduction possibilities.

While there remain some caveats to the model, this paper may provide a contribution to the discussion about banking regulation and policy in the aftermath of the tremendous financial crisis that massively impacted economies in Europe and elsewhere.

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Introduction

In the years before the 2008 financial crisis, European banks benefitted from easy financing and favourable economic climate to expand their operations and the size of their balance sheet. They "*borrowed money with the view to enhancing their profit*", a process called "leverage" according to the definition of the European Banking Federation (2010, p4). The quantity of assets held by banks, including loans to the private sector, interbank loans, or external assets became less and less backed by capital which increased their vulnerability to adverse shocks.

In 2008, the subprime crisis initiated in the USA quickly propagated to European financial institutions. Many of them required bail out measures to avoid bankruptcy, which increased the public debt of already highly indebted European economies. The financial crisis then propagated to the real economy, causing recession and unemployment in many regions in Europe. In the aftermath of this major financial failure, the business models of the banking sector started to be challenged by regulators who took numerous actions to ensure a return to more financial soundness. The Basel III Agreements released in 2010 imposed a minimum leverage ratio[1] of 3%, a liquidity ratio[2] as well as a raising of Core Tier 1 capital ratio of 4,5% of Risk-Weighted Assets in 2015, increased to 7% in 2019. The European Banking Authority even temporarily raised the ratio to 9% in January 2012 to restore confidence in the banking sector. Furthermore, additional requirements were asked for banks that beneficiated from rescue plans and some national regulators also added complementary measures. Banks were thus forced to trigger a process of deleveraging, i.e. *"the process of reducing the banking sector leverage level, and more broadly speaking the shrinking, the strengthening and cleaning up of bank balance sheets after a financial crisis"* (European Investment Bank (2013), p173).

Regulation was not the sole driver of deleveraging in Europe. As explained by the paper from the EIB, the drying up of the interbank market observed during the crisis forced many European financial institutions, which were dependent on short-term wholesale funding, to scale back their activities. Feyen and Gonzalez del Mazo (2013) also point out the role of

[1] Defined as $\frac{Tier\ 1\ Capital}{Exposure\ measure}$ where $Exposure\ measure$ encompasses on-balance sheet assets, derivative exposures, securities finance transactions and other balance-sheet exposures

[2] Called Liquidity Coverage Ratio (LCR), defined as

$$\frac{Stock\ of\ HQLA}{Total\ net\ cash\ outflows\ over\ the\ next\ 30\ calendar\ days} \geq 100\%$$

where $HQLA$ is the abbreviation for High Quality Liquid Assets

significant deposit outflows, particularly in some peripheral European countries, that weakened the liquidity position of the banks. Finally, the EIB refers to the lack of investment opportunities due to the morose economic climate as a factor that depressed the demand for bank products, which contributed to the bank deleveraging pressures.

The objective of the new rules such as those prescribed in Basel III was "*to promote a more resilient banking sector (…) and to improve its ability to absorb shocks arising from financial and economic stress, thus reducing the risks of spillover from the financial sector to the real economy*" (Bank for International Settlements (2010) p1). However, concern rapidly grew about possible drawbacks of the deleveraging process. The International Monetary Fund, for example, stated in its April 2012 Global Financial Stability Report that a disorderly deleveraging process could have dramatic effect on real economy in Europe. Feyen, Kibuuka, and Ötker-Robe (2012) explain that if banks simultaneously reduce too much, or not in a good way their leverage level, the consequences could be a credit crunch with global spillover effects. Some analysts from Citybank Inc. and Deutsche bank (quoted in Chassany, A.S., & Kennedy, S. (2011)) warned that the asset cutting operated to comply with the new regulatory rules indeed helped the euro area economies to fall into recession.

This study tries to understand through which dynamics the deleveraging process initiated by banks in the euro area could harm economic growth. This question is important because it raises the issue of the role of the banking sector within an economy in the aftermath of the 2008 crisis. This financial catastrophe highlighted how the discrepancies between the banking sector and the real economy have widened in the past decade. It also offers a different view on the challenges faced by the banks in the context of an overall dramatic tightening of the financial regulation.

The method used is a panel data analysis, using data on sixteen euro area countries over eleven years. The paper is articulated as follows. In section 1 are collected the main insights from the literature on the channels through which the deleveraging process can affect economic growth as well as the current state of bank deleveraging in the euro area. Section 2 details the methodology used in the paper and proposes a model to analyse quantitatively the relationship between economic activity and deleveraging. Section 3 displays the outcome from the different analyses and provides an interpretation for the main results.

1. Literature review

The impact of the deleveraging process of banks on economic growth has been widely researched. There seems to be a consensus on the channels through which reduced levels of leverage could be harmful for economic activity.

First, many authors make a distinction between "good" and "bad" deleveraging. Feyen, Kibuuka and Ötker-Robe (2012) state for example that in the wake of the financial crisis, deleveraging is desirable to some extent, if it allows to get rid of existing activities that lack real economic value, thereby enhancing the soundness of the banks. Andrea Enria, chairperson of the European Banking Authority, explained at a conference on debt, deficits and financial instability in New York (2012), that the bank deleveraging process observed in post crises periods often reflected a cleaning of the balance sheet: banks recognize their losses and the accounting values are revised downwards which reduces the size of the balance sheet. It is in no way harmful for the economy since it does not influence the quantity of loans. It is even beneficial when the troubled assets accumulated before the crisis are dismissed or written down. In a study focusing on Global Systemic Important Financial Institutions (G-SIFI's), Blundell-Wignall and Atkinson (2012) indeed use the expression "good deleveraging" when banks deleverage mainly through a raise in capital, be it via a reduction of dividends and executives compensations in favour of retained earnings or via a raise in equity. Benoit Coeuré, member of the Executive Board of the ECB, speaking at a banking summit in Paris (2014) explained that what he called "good deleveraging" involves a raising in the bank's capital while at the same time eliminating the impaired assets in an orderly and rapid manner. In his opinion, this approach allows to correct the pitfalls of the old business models of banks by reallocating the credit to more competitive sectors. The ultimate goal is a more dynamic recovery.

In contrast, still according to Coeuré, "bad deleveraging" entails "*an indiscriminate reduction in balance sheet size, regardless of the quality of assets*" with the sole purpose of reducing indebtness. It is of course this way of deleveraging that is seen as dangerous. In the same speech, Benoit Coeuré explains that deleveraging operated this way harms the transmission of the monetary policy: the ECB is in principle able to impact the real economy through bank lending rates. Banks that are deleveraging indifferently among the different asset classes may block this channel: they ask a higher compensation for any exposure that increases risk-weighted assets such as loans granted to non-financial corporations and households, regardless of the ECB lending rate. This is especially true in the European context which relies heavily on the banking sector to finance the economy. Moreover, this phenomenon will mostly impact small borrowers that have no alternative sources of funding: they cannot, contrary to big corporations, issue bonds to finance their operations

through the capital market. These dynamics are at the very core of the present analysis: banks that would start reducing the size of their balance sheet regardless of the asset category (or even worse, eliminating good assets first while retaining distressed assets, what Coeuré calls "ugly deleveraging") may cut the link between ECB rate and lending rate. The lending conditions would become stricter and small borrowers such as households and non-financial corporations would have more difficulties to finance their purchases and investments which would eventually impact economic growth. For example, as explained by the European Banking Federation (2010), a shortage of credit granted to corporations prevents an economy from reaching its full potential, because some sound projects remain unrealized only because of the lack of financing possibilities or because of the too high costs associated with them. Andrea Enria, in the above mentioned speech, shares the same view and claims that an indiscriminately and abrupt reduction in the loans granted to the real economy may lead to an economic slowdown, or even to a credit crunch. Feyen, Kibuuka and Ötker-Robe (2012) highlight the fact that when such deleverage occurs at the same time in many banks, the situation becomes a major cause of concern as it can turn into a "massive credit crunch with global spillover effects". This view was also expressed by the IMF in its Global Financial Stability Report (2012) that states that a synchronized deleveraging by European banks could severely harm asset prices, credit supply and economic activity in Europe.

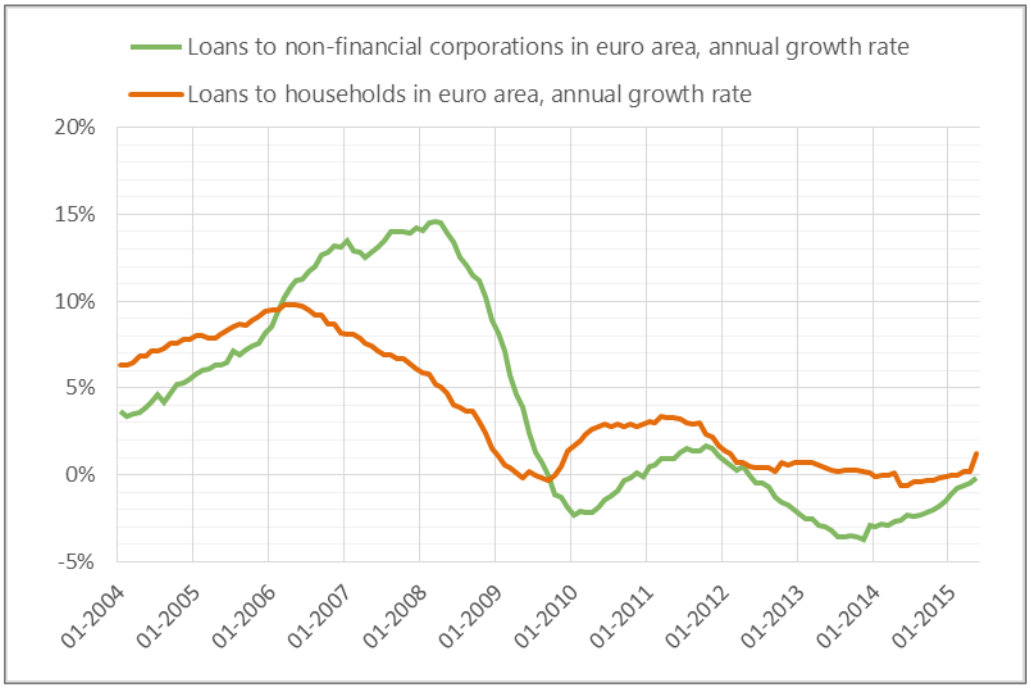
The OECD (2015), however, offers a quite different perspective on the topic. Indeed, a recent study shows that over the past 50 years, the credit granted by banks and financial institutions to households and corporations has grown three time as fast as economic activity. The OECD observes that if this expansion continues to proceed, it may actually negatively impact long-term growth as well as raise inequalities. Indeed, finance constitutes as a crucial element to ensure long-term growth but credit overexpansion might be an obstacle to economic performance. There are several reasons for this, including a weakening of the economic fundamentals as a result of credit deregulation and a lower quality of credit as their quantity increases. This work is important because it shows that deleveraging could actually be positive even when hitting the loans granted to the households and corporations, if it follows a period of credit overexpansion.

Another important contribution to this topic comes from Takáts and Upper (2013). They investigate the deleveraging process that took place after thirty-nine financial crises that were preceded by a credit boom. They observe that contrary to the general consensus, nothing indicates that the reduction of the loans granted to the private sector harms economic growth. According to them, this is because low quality loans are often accumulated in the period of credit growth preceding the crises. Indeed, while credit expansion is positively associated with economic growth when the loans are granted to competitive sectors, low quality loans in fact appear to be an obstacle. The authors suspect

that many of the bad loans are discarded first during the post crises deleveraging process, which may actually improve economic performance.

As has been pointed out, the extent of credit expansion and credit deleveraging is of great importance. That is why it is important to understand what happened (and is still happening) to the banks' balance sheets from before and after the 2008 financial crisis. A vast body of research indeed provides data and facts on this evolution. An interesting starting point is the credit granted to the private sector. The next graph (Figure 1) is based on data from the European Central Bank (ECB) data warehouse. It shows the evolution of the growth rate of loans to households and to non-financial corporations in the euro area.

Figure 1: Loans to the private sector in the euro area: monthly growth rate
(source: ECB, personal insights)



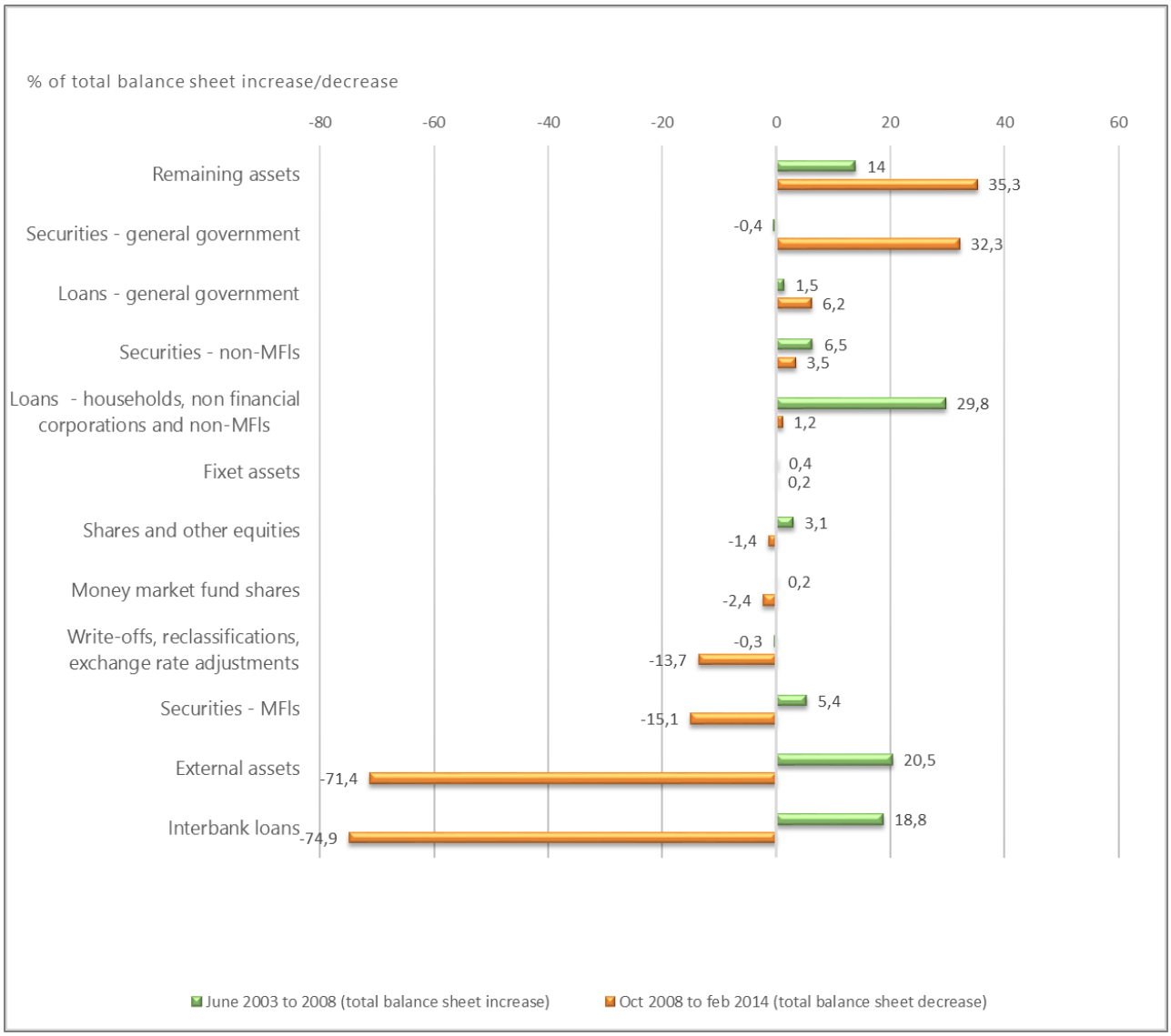
Both curves display a similar shape. They are both characterized by a sharp increase in the pre-crisis period. This credit boom was possible due to the easy access to liquidity by banks, and has been accompanied by an accumulation of risk taking on and off the balance sheet of banks (Santos, Velasco, 2015). The tremendous decline observed in the months following the core of the financial crisis illustrates how financial distress affected the economy. However, it is important to bear in mind that the reduction in credit growth was not only caused by a tightening of the lending conditions, but also by a sagging confidence that severely hit both business investment and household demand (Buti, Szekely, 2009). It is however difficult to determine precisely whether supply or demand factors were more responsible for the fall in non-financial private credit. For example, a study from the Bank of International Settlement (BIS) on European Bank funding and deleveraging (2012)

concludes that supply factors played a major role. Indeed, the BIS, on the basis of lending surveys conducted in the Euro area, shows that a lot more lenders declared having tightened their lending conditions than loosened them, while the balance of lenders declaring having faced an increased or decreased demand for credit was much more equal. In contrast, in its February 2012 monthly bulletin, the European Central Bank (ECB) indicates that the sharp decline in non-financial corporation loans reflect at least partly a change in the financial strategy of the enterprises, that used more internal and market-based financing in order to reduce their level of indebtness as well as their dependence on banks. According to the ECB, the decline in household loans is also believed to be somehow linked to the decline in the housing price, in the amount of disposable income and in the overall level of confidence. Both supply and demand factors seem thus at the origin of the fall in the private sector credit.

Another important insight from the graph is that, except for limited periods of time, the growth rate of loans granted to households has remained positive, which means that there was in fact no dramatic cut in the credit but rather a sensible deceleration in the pace of loan increase. Loans to non-financial corporations, however, have shown negative growth rates over longer periods.

It is useful to compare the situation for loans granted to the private sector to other asset classes in order to get some perspective. A recent study from the Austrian Central Bank (Eidenberger, W. Schmitz, & Steiner, (2014)) provides some insights for this matter.

Figure 2: Euro Area Banks: Contribution of Asset and Liability Categories to Changes in the Balance Sheet before and after October 2008 (source: Austrian Central Bank)



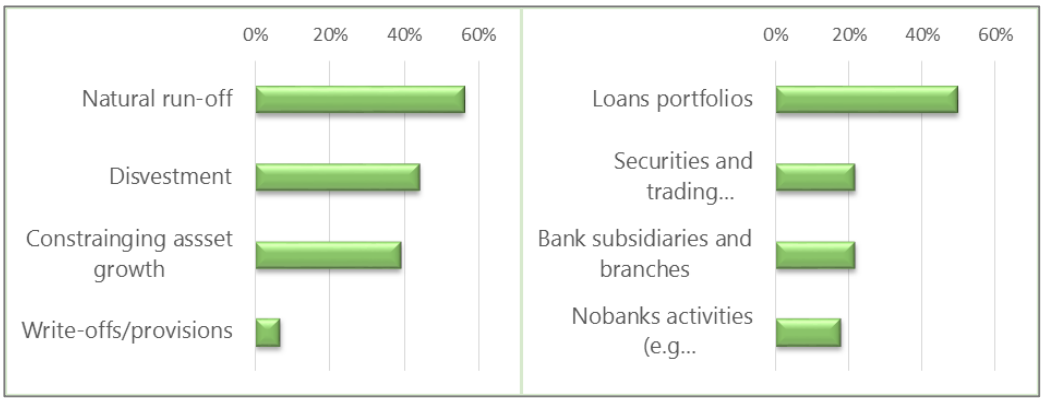
The graph compares the evolution of the contribution of each asset class to the total balance sheet pertaining to two periods, one from 2003 to 2008 (before the crisis) and one from 2008 to 2014 (after the crisis) in the Euro area. The most striking feature is that in relative terms, external assets and interbank loans were top priorities of deleveraging after the financial crisis, with respectively -71.4% and -74.9%. To a lesser extent, the write-offs and the securities to monetary financial institutions also saw their share of the balance sheet decrease. On the contrary, Euro area banks increased their position in the securities to government and in remaining assets. Loans granted to households and non-financial corporations, i.e. the private sector, tremendously increased before the crisis, but their share did not decreased afterwards and even increased slightly. This clearly means that in the context of an overall shrinking balance sheet, the loans granted to the real economy were

not the main deleveraging asset class, even if, as was shown earlier, in absolute terms, the growth rate of loans has been negative in some periods. Based on these observations the Austrian Central Bank recognizes that the deleveraging process was important in Europe but that "*from a macro-prudential point of view, euro area banks have set the right priorities in deleveraging since October 2008*" (Eidenberger, W. Schmitz, & Steiner, (2014) p50).

Another study from the Italian Central Bank (2014) analyses the deleveraging process that was initiated in Europe in response to the financial crisis. They focus on a sample of banks from ten European countries. They confirm that the deleveraging process has so far been relatively successful, with about two thirds of the reduction in the leverage ratio coming from an increase in common equity, and one third from asset reduction.

Although it appears that until now, the deleveraging process has been appropriately addressed, one might wonder whether this tendency can be sustained in the future. Deloitte conducted a bank survey (2012) on deleveraging. They interrogated eighteen financial institutions across eight European countries. These institutions were asked how they believe deleveraging was the most likely to be achieved (on the asset side). The results (Figure 3) show that 56% of the respondents believe it was going to be through natural write-offs and 44% through divestments. More importantly, when asked which asset classes could be impacted the most in case of divestment, about 50% of the respondents declared that loans portfolio were likely to be a core component of the divestment plans.

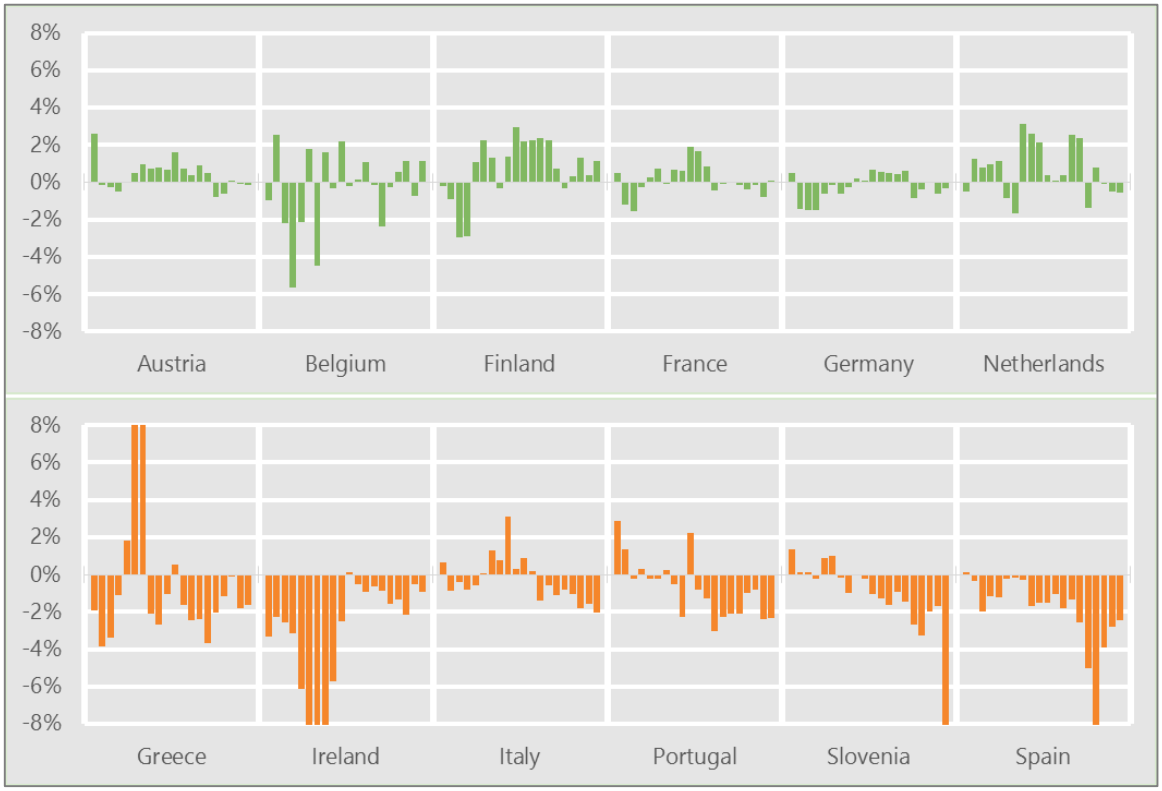
Figure 3: Bank lending survey on deleveraging (source: Deloitte)



Based on these results and further analyses, Deloitte predicts that real estate loans and corporate loans could be the next asset classes to be severely hit especially in banks that have already divest their non-core assets but that still need to size down their balance sheet. There are thus some signs that tend to indicate that private credit in the euro area may become a more important concern in the future.

It is also interesting to observe how lending has evolved on a country basis. Indeed, the euro area is composed of very diverse countries with different economic structures. It could be that the diagnosis posed on the euro area as a whole actually hides heterogeneous evolutions. Figure 4 analyses the credit granted to the non-financial corporations in the period 2009-2013 in two groups of countries generally referred to as core and peripheral countries in the euro area[3]. The data come from the ECB.

Figure 4: Loans to non-financial corporations 2009-2013: monthly growth rate (source: ECB, personal insights)

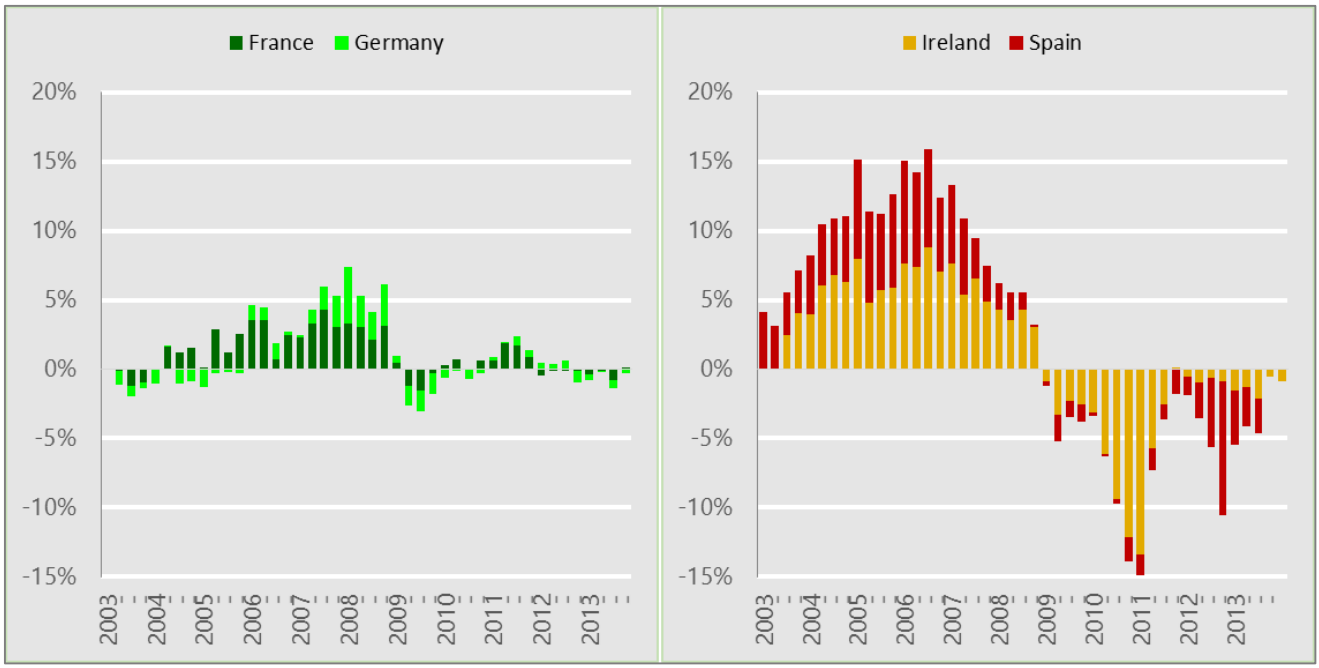


We notice different paths since the financial crisis: clearly, even if some episodes of negative growth rate can be observed in core countries, in no way is the extent of the drop close to the fall observed in peripheral countries. The German Central Bank, in its July 2013 monthly report analyses these differences. First, they assert that credit demand factors played an important role: the fall in credit in peripheral countries was partly related to the lack of sale opportunities due to the very weak economic activity in these countries. The overall level of confidence also crashed there much more than in core countries. Moreover, they note that credit dropped more dramatically in countries were the rise in the pre-crisis period was

[3] See for example the classification made in the International Monetary Fund Financial Stability Report (2012, October). Finland was added in the core countries and Slovenia in Peripheral countries due to their resemblances with the other core and peripheral countries in terms of the evolution of the observed variables.

more marked. For example, countries like Germany, or France almost never observed credit growth in the region of 5% in that period whereas Spain or Ireland were well above at times, as can be seen in Figure 5.

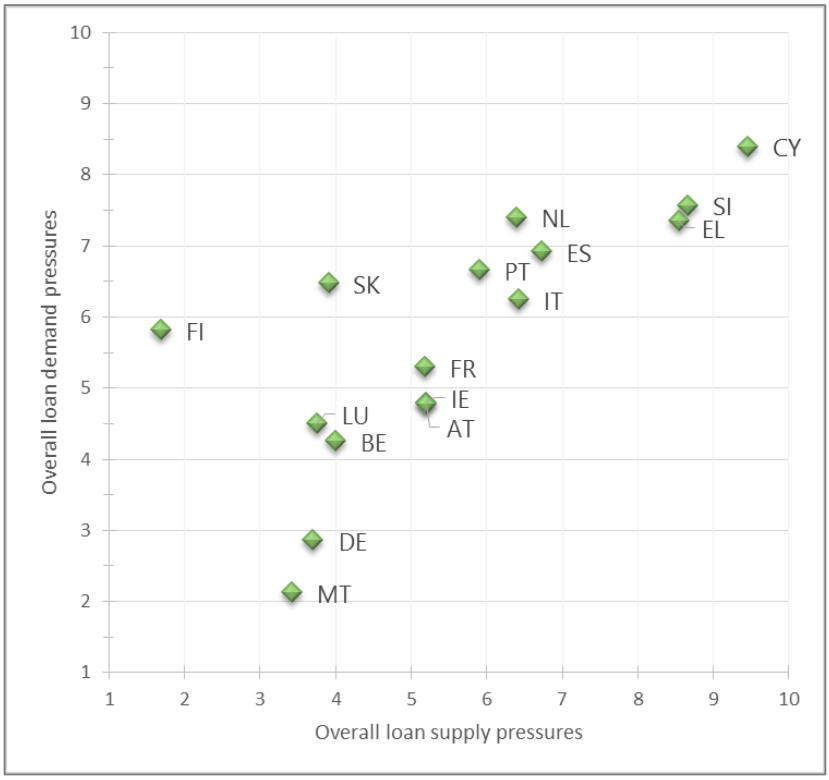
Figure5: Loans to non-financial corporations 2003-2013: monthly growth rate
(source: ECB, personal insights)



The sharp reduction as from the financial crisis thus also reflect a desire from the non-financial enterprises to reduce their level of indebtness. In addition, the German Central Bank explains that bank deleveraging also mattered a great deal. As a result of weak balance sheets, tighter regulation and higher counterparty risk, banks in peripheral countries contracted their lending to corporations much more than banks in core countries. The same dynamics were observed for household loans as illustrated by the graph in Appendix A.

Finally, an interesting contribution comes from the European economic forecast of the European Commission (2014). They use a paper from Cuerpo et al. (2014) to draw a graph of the short term future credit deleveraging pressures for the non-financial private sector in Europe based on two axes: the horizontal axis represents the supply factors that are likely to provoke a reduction of the provision of credit. This synthetic indicator is based on variables measuring financial soundness and on lending surveys. The vertical axis, on the other hand, accounts for the demand factors and covers variables such as sentiment, employment, housing prices as well as lending surveys. Both supply and demand factors are then aggregated by country and scaled to a one to ten range. The results for the sample of countries used in this study (see infra) are displayed in the next chart.

Figure 6: Credit supply and demand deleveraging pressures[4]
(source: European Commission[5])



We observe that not all countries face the same type of loan pressures nor the same intensity in the tension but clearly, supply factors, i.e. those related to the bank deleveraging process, will continue to be important: the private sector in countries like Cyprus, Slovenia or Greece, but also the Netherlands, Spain, Portugal or Italy is expected to face further strong deleveraging pressure in the near future. Interestingly, we also observe that supply and demand tensions seem to go hand in hand in a majority of countries. A reason could be that some factors might affect demand and supply for credit in the same way. This hypothesis will be discussed later (see infra).

These studies illustrate that the bank deleveraging process will need to be carefully monitored because it could remain a cause of concern for the credit conditions in the future. As has been explained, a shrinking of credit could eventually harm economic activity. The next sections will be dedicated to an empirical analysis whose aim is to analyse whether these dynamics verified in reality.

[4] Countries are tagged with the two-letters international abbreviation. Full names are given in Appendix B

[5] Aggregate indicators are based on Cuerpo et al. (2014)

2. Methodology

The goal of this study is to investigate whether there is a link between loans granted to households and non-financial corporations and economic growth. The literature indeed suggests that this is the main channel through which the level of leverage of banks can impact the economic performance of a country. To this end, this paper estimates the potential relationship with the following regression equation:

$$\Delta GDPtrend_{it} = \beta_1 \Delta Loans_{it} + \beta_2 \Delta CPI_{it} + \beta_3 Govexp_{it} + \beta_4 CISS_t + \alpha_i + \epsilon_{it}$$

Where $\Delta GDPtrend_{it}$ is the growth rate of the trend component of GDP, $\Delta Loans_{it}$ is the growth rate of the loans granted to households and non-financial corporations, ΔCPI_{it} is the monthly change in the Harmonized Consumer Price Index (HCPI) used as a proxy for the inflation rate, $Govexp_{it}$ is the percentage of government expenditures to total GDP, $CISS_t$ the Composite Indicator of Systemic Stress as a measure for systemic stress, α_i the unobserved time invariant individual effect and ϵ_{it} is the idiosyncratic error.

The base model assumes linearity of the regression equation. This is in accordance with extensive research on the relationship between bank credit and economic growth[6]. An extended model will determine afterward whether different results are obtained during economic boom or economic recession which could indicate non-linearity. The regression is performed using panel data analysis. This technique offers more informative data than pure time series or cross sections and allows to account for heterogeneity of the data. The first step in performing a panel data regression is to determine whether fixed-effect or random-effect estimation should be used. To answer this question, the widely recognized Hausman test is used.

Regarding the dependent variable, quarterly data on GDP are chosen as a measure of economic activity, since it remains the most widely used indicator in this field (Dlabay, Burrow, Kleindl, 2011). In order to capture only the trend component of GDP, a Hodrick-Prescott filter (HP filter) is applied to the raw data, as any potential relationship must not be biased by the inherent cyclical behaviour of quarterly GDP data. Finally, $GDPtrend$ is expressed as a growth rate using the classical growth formula[7].

[6] See for example Takáts and Upper (2013), and Korkmaz (2015)

[7] i.e. $\frac{GDPtrend_{t+1} - GDPtrend_t}{GDPtrend_t}$

The main regressor of this analysis is the $Loans$ variable. This variable is constructed by summing data on total loans granted to households and to non-financial corporations and applying a one period lag. The reason for this is that one cannot expect an immediate link between loans and economic growth; it can safely be assumed that households and corporates take some time to translate a change in loans into a change in consumption or investment. Again, the $Loans$ variable is expressed as a growth rate.

The regression equation also encompasses three control variables in order to observe whether any potential relationship between the loans granted to the private sector and the economic growth would survive the addition of other variables generally recognized to have an impact on economic activity. Due to the volatility of the dependent variable over the observed period (see infra), only variables that were likely to fluctuate over the time interval were selected[8].The availability of the data was also a selection criteria. The three control variables serve three distinct purposes.

First, the CPI variable is the Harmonized Consumer Price Index (HCPI) and is used as a proxy for the inflation rate. The reason is straightforward: since the raw data for the dependent variable and the main regressor were expressed in nominal value, CPI allows to account for large differences in inflation across countries and over time. Moreover, despite some contradictory studies, inflation is generally acknowledged to negatively impact economic growth[9]. In the regression equation the growth rate of inflation is used.

The second control variable, $Govexp$, corresponds to the total amount of government expenditure as a percentage of the GDP. This variable serves the general purpose of accounting for the importance of the government within the economy and in the broader sense to determine whether the public or the private sector contributes more to the wealth of the country. This is of course important: in countries where the private sector represents a large fraction of GDP (i.e. $Govexp$ has a low value), one can expect that a change in loans granted to households and corporations will have a larger impact on economic growth. Moreover, there are many studies that recognise the significant impact of the level of government spending on economic performance. One of the most famous works on this topic is the so-called Rahn curve illustrating an inverted U shaped relation between government expenditure and economic growth (Rahn, Fox (1996)).

[8] For example, the level of human capital accumulation of a country, approximated by the level of educational attainment of the working force is recognized as having a significant impact on economic growth (see for example Tiruneh, Radvansky (2011)) but is likely to remain relatively stable over the considered period of eleven years and is therefore not selected.

[9] see for example the study from Andrés and Hernando (1997) on OECD countries

Finally, the $CISS$ variable is important to reflect the financial dimension. The reason is quite straightforward: banks and financial institutions that provide the loans are very sensitive to the level of financial stress. Indeed, according to Takáts and Upper (2013), in periods of financial instability, it is harder for banks to access external funding and as a result, they can be less inclined to grant loans, which eventually slows down economic growth. While Takáts and Upper choose the VIX index as proxy for financial stress, the CISS is preferred in this analysis because it measures the degree of instability of the financial system as a whole (Byström, (2015)), combining information from various financial markets such as equity, bond or foreign exchange, rather than focusing solely on the stock market (Bekaert, Hoerova (2014)).

3. Empirical results

This section shows the results of the statistical analyses performed to investigate the relationship between loans and economic growth.

A. Description of data

This study focuses on euro area countries, excluding Lithuania, Latvia and Estonia because of their late accession and lack of reliable data. The final cross section is thus composed of sixteen quite heterogeneous countries in terms of size, economic performance and financial stability.

The data cover the 11-year period between 2003 and 2013. The reason is that it shows a very interesting evolution of the economy in Europe. From 2003 to 2007, many European economies were recovering from the dotcom crisis and enjoyed increasing growth rates. 2007-2008 was the core of the financial crisis that hit Europe and which then turned into a deep economic recession accentuated by a severe credit crunch. From end 2009, the euro area faced the euro debt crisis from which some countries recovered pretty quickly while others are still deeply affected.

This heterogeneity in the economic performances both across time and geography will help to understand whether the documented link between economic performance and loans exists in reality but also whether it is consistent over different economic situations and whether it is more marked in some periods than in others.

The data regarding GDP, government expenditure and Consumer Price Index are collected from Eurostat while the data on loans and on CISS come from the ECB data warehouse. The full database can be found in Appendix B and the complete description of raw data used in the analyses in Appendix C.

Since not all data are released at the same frequency, some transformations must be applied so that all data are expressed in quarterly data which is the frequency of GDP, the dependent variable. The high frequency data are converted by averaging the values for each group of three months ($Loans$, $CISS$) or taking the difference between the third and the first month (CPI growth). The low frequency data are interpolated using a cubic spline interpolation ($Govexp$).

Finally, in order to enhance the interpretability of the results, all data are expressed in percentages: $GDPtrend$, $Loans$ and CPI are growth percentage, $Govexp$ is a percentage

of GDP and $CISS$ is a number from zero (no financial stress at all) to 100 (perfect financial stress)

Table 1 provides some univariate summary statistics for each variable. The terms overall, between and within refer respectively to the overall panel, the cross-sections and the time series. These two dimensions are helpful to ease the interpretation of the results. In the last column called Observations, N refers to the total number of observations, n is the number of countries for which there is at least one observation and T is the average amount of time series per country observed.

Table 1: Basic summary statistics[10]

Variable		*Mean*	*Std. Dev.*	*Min*	*Max*	*Observations*
GDPtrend	overall	1,07%	0,96%	-1,74%	5,18%	N = 688
	between		0,51%	0,56%	2,60%	n = 16
	within		0,83%	-1,71%	3,94%	T = 43
Loans	overall	1,46%	2,52%	-7,88%	20,08%	N = 637
	between		0,77%	0,12%	2,82%	n = 16
	within		2,41%	-7,82%	19,24%	T-bar = 39,8125
CPI	overall	0,40%	1,24%	-4,60%	4,80%	N = 704
	between		0,43%	-0,43%	1,43%	n = 16
	within		1,16%	-3,88%	4,22%	T = 44
Govexp	overall	46,05%	5,90%	32,91%	68,33%	N = 692
	between		4,89%	39,26%	54,10%	n = 16
	within		3,57%	37,44%	70,80%	T-bar = 43,25
CISS	overall	21,95%	15,54%	2,56%	52,11%	N = 704
	between		0,00%	21,95%	21,95%	n = 16
	within		15,54%	2,56%	52,11%	T = 44

Even if one needs to be careful when interpreting such summary statistics for a panel of quite heterogeneous countries, some remarks are worth making. First, loans are significantly more volatile over time than across countries. The between standard deviation (St. Dev.) is indeed smaller than the within St. Dev. That means that when considering this sample, loans are more impacted by the evolution of the economy over time than permanent differences between countries. Some further analyses will investigate both dimensions in more details (see infra).

[10] All numbers in this paper are expressed using the European convention i.e. a comma is used as a decimal marker

The observation made for loans is also true, although to a lesser extent, for the inflation. Given the panel is only composed of euro area members who share a common objective in terms of inflation target, this stands to reason.

The zero value for the between St. Dev of the $CISS$ variable is explained by the fact that a euro area CISS rather than a national CISS was selected, since such data were only available for a few countries.

In order to perform the regression, it is important to control for collinearity among the variables, i.e. to make sure that no variable is simply a linear combination of some other variables. A common test is to look at the correlation among the variables. It is obtained by considering the panel as a pooled dataset. This is possible because all data are expressed in relative terms. Table 2 displays the correlation matrix.

Table 2: Correlation matrix

	Loans	*CPI*	*CISS*	*Govexp*
Loans	1,00			
CPI	-0,09	1,00		
CISS	-0,12	0,20	1,00	
Govexp	-0,07	-0,06	0,10	1,00

The table indicates there is no correlation above 0.50 between variables meaning in principle that there is no collinearity. In order to make sure these results were not biased by the fact that a pooled dataset had been used, the correlation matrixes were also verified period by period and country by country but again, no consistent correlation was found between variables. The correlation matrixes of each country can be found in Appendix D.

B. Estimation results

The first step consists in determining whether fixed effect or random effect estimates should be used. This is done by means of the Hausman statistics whose results are shown below:

$$\chi_4^2 = 7{,}54$$

$$Prob > \chi_4^2 = 0{,}1100$$

The null hypothesis in the Hausman test states that the covariance between the regressors (X_{it}) and the unobserved time invariant individual effect (α_i) equals 0. This hypothesis is

the basis for the use of random effect models: if H_0 is true, both random and fixed effect models are consistent but random effect models are more efficient and should therefore be used (lower standard error). In contrast, if H_0 is false, this means that there is some covariance between α_i and X_{it}, and only fixed effect models should be used.

The hypothesis testing can be estimated by a Chi-squared function with four degrees of freedom (each degree corresponds to one variable). The value for the Hausman statistic is 7,54 so that the probability for the null hypothesis being true is 0,11. It seems that the null hypothesis can quite safely be rejected and therefore the fixed effect model should be used.

This is actually in line with what could have been hypothesised: one can legitimately expect that economic growth is (also) a function of other unobserved factors than those introduced in the model. We can also safely assume that (at least part of) these unobserved factors are specific to each country and that they do not vary significantly over time. Moreover, it is fair to assume that somehow there is a link between such an unobserved time invariant country specific factor and some of the regressors.

This is best illustrated with an example: one could argue that one way or another, the degree of financial sophistication has an impact on economic growth (see for example Rousseau, Sylla, 2003). Yet there is no observation in the model to quantify this factor. We can also assume that over a relatively short period of time such as the one used in this study, this degree of financial sophistication is time invariant and is specific to each country. Finally, it may be assumed that there is some correlation between the degree of sophistication and the $CISS$ variable or the $Loans$ variable. Such hypotheses validate the use of the fixed effect model.

The next two tables (Tables 3A and 3B) show the results of the panel regression. The standard errors displayed in Table 3B and in the remainder of the analyses are cluster-robust with the clusters defined as countries. Defined that way, the standard errors are robust to both cross sectional heteroscedasticity and within panel serial correlation, which allows to relax the assumption of constant variance but also of independent and identically distributed error terms (Wooldridge (2013)).

Table 3: Fixed effect (within) regression: *GDPtrend* as dependent variable

A. General results

Number of obs	627
Number of groups	16
R^2 (within)	0,51
F(4,15)	33,23
Prob>F	0,00
corr (u_i, Xb)	-0,12

B. Coefficients analysis

GDPtrend	*Coef.*	*Std. Err.*	*t*	*p>|t|*	*[95% Conf.*	*Interval]*
Loans	0,0627	0,0312	2,010	0,063	-0,0039	0,1293
CPI	-0,0049	0,0093	-0,530	0,601	-0,0247	0,0148
Govexp	-0,0572	0,0159	-3,600	0,003	-0,0910	-0,0233
CISS	-0,0155	0,0022	-7,120	0,000	-0,0201	-0,0109
Cons	0,0384	0,0076	5,040	0,000	0,0222	0,0547
Sigma_u	0,0043					
Sigma_e	0,0046					
Rho	0,4585					

The first observation is that all regressors are jointly significant. Fixed-effect regression being a *within* estimator[11], only the R^2 *within* is reported with a value of 50,69%. It corresponds to the percentage of variation in *GDPtrend* across time explained by the model. This result is rather positive considering the complexity of the mechanisms that influence GDP and the relatively small amount of variables included in the model. The *corr_(u_i, Xb)* value provides an estimation of the correlation between the individual effect and the regressors[12].

The individual regressors analysis (Table 3B) suggests that the *Loans* variable is not significant at a 95% confidence interval but is at a 90% level since the p-value is lower than 0,1. This result is rather satisfactory too, since it indicates that a statistical relationship may

[11] Since fixed effect model is a regression on the equation of the form:
$GDPtrend_{it} - \overline{GDPtrend_i} = \beta_1(Loans_{it} - \overline{Loans_i}) + \beta_2(CPI_{it} - \overline{CPI_i}) + \beta_3(Govexp_{it} - \overline{Govexp_i}) + \beta_4(CISS_{it} - \overline{CISS_i}) + (\varepsilon_{it} - \bar{\varepsilon}_i)$ where $\bar{X}$ is the time average value of X.

[12] Since a fixed effect model is used, it is assumed that this correlation is different from zero

actually exist. The coefficient can be interpreted as follows: a one percent increase in loans granted to the private sector increases the trend value of the GDP by 0,06 percent.

With regard to the other variables, we observe that *CPI* is clearly insignificant, while *Govexp* and *CISS* are both significant, which means that an interpretation is possible for the sign of their coefficient. The negative sign for *Govexp* is interesting: it means that considering this model, the more an economy relies on the public sector to produce wealth, the lower the economic growth. This relationship is illustrated by the Greek case (high government expenditure ratio, 64% and negative economic growth, -7% for the last quarter of the sample). The negative sign for the *CISS* variable is more straightforward: increasing financial stress is associated with lower economic growth.

Table 3B also provides information over the nature of the residual term: the *Sigma_u* and *Sigma_e* metrics correspond to the standard deviation of the individual effect and the idiosyncratic error, respectively. The numbers are low and roughly equal which indicates that both components of the constant term are equally important. This result is confirmed by the *Rho* value of 0,45[13] which indicates that 45% of the variance of the constant term is caused by individual effect.

The main conclusion from this regression is that a statistical relationship seems to exist between credit to households and non-financial corporations and economic growth. These results confirm the overall consensus highlighted in the literature review regarding the dangers of an indiscriminate deleveraging that would hit the credit to the private sector, for the economic performances of a country. It should be noted, however, that the coefficient obtained is relatively small which indicates that the impact of loans should not be overestimated.

C. Robustness

In this section some complementary analyses are performed in order to enhance the initial model.

Consumption and Investment as dependent variable

The aim of this section is to investigate whether the results would be different if a slightly modified model was used: the dependent variable is now the sum of investment and

[13] Calculated as follows: $\frac{(sigma_u)^2}{(sigma_u)^2+(sigma_e)^2}$.

consumption, as proposed by Takáts and Upper (2013). Indeed, the literature showed through these two components of GDP that loans were the most likely to have an impact on economic activity (see supra). The goal is thus to eliminate all components of GDP that have no direct relationship with credit to the private sector and that may disturb the model. The equation is now:

$$\Delta ICtrend_{it} = \beta_1 \Delta Loans_{it} + \beta_2 \Delta CPI_{it} + \beta_3 Govexp_{it} + \beta_4 CISS_{it} + \alpha_i + \epsilon_{it}$$

Where IC_{it} is the new dependent variable created by summing investment and consumption data in each country for each period, and extracting the trend from it, using an HP filter.

The first step is again to perform the Hausman test. The results are as follows:

$$\chi_4^2 = 12{,}97$$

$$Prob > \chi_4^2 = 0{,}0114$$

This indicates that fixed effect estimation should again clearly be preferred. The results of the regression using a fixed effect model are shown in Table 4:

Table 4: Fixed-effect (within) regression: *ICtrend* as dependent variable

A. General results

Number of obs	627
Number of groups	16
R^2 (within)	0,54
F(4,15)	32,32
Prob>F	0,00
corr (u_i, Xb)	-0,24

B. Coefficients analysis

ICtrend	*Coef.*	*Std. Err.*	*t*	*p>|t|*	*[95% Conf.*	*Interval]*
Loans	0,0902	0,0376	2,400	0,030	0,0102	0,1703
CPI	-0,0096	0,0102	-0,940	0,360	-0,0313	0,0121
Govexp	-0,0725	0,0207	-3,500	0,003	-0,1167	-0,0284
CISS	-0,0171	0,0028	-6,020	0,000	-0,0232	-0,0110
Cons	0,0451	0,0100	4,500	0,000	0,0238	0,0665
Sigma_u	0,0049					
Sigma_e	0,0054					
Rho	0,4465					

Again, the regressors are jointly significant. The main difference compared to the initial model is that the $Loans$ variable is now significant even at a 95% confidence interval. This means that there clearly exists a statistical relationship between loans, consumption and investment.

The positive sign of the coefficient means that over the observed period and across the panel of euro area countries, a one percent growth in loans granted to households and non-financial corporations induces a 0,09 percent increase in consumption and investment. This is very important since it enforces the initial model and confirms the main channel through which a change in the growth rate of loans influences economic growth: in the context of the overall deleveraging process, if banks were to reduce their lending facilities to households and non-financial corporations, this would reduce the final consumption as well as investments.

The crisis factor

A major event has so far been omitted: the 2008 financial crisis severely hit the entire euro area around the middle of the observed period. This crisis turned many countries into recession. The goal of this section is to analyse whether there is a difference in the relationship between loans and economic growth if we look at the period before 2008 or afterwards, i.e. in a period of economic expansion and in a period of recession.

The model is now expressed as

$$\Delta GDPtrend_{it} = \beta_1 \Delta Loans_{it} + \beta_2 \Delta CPI_{it} + \beta_3 Govexp_{it} + \beta_4 CISS_t + \beta_5 Crisis + \beta_6 (Crisis * \Delta Loans_{it}) + \alpha_i + \epsilon_{it}$$

Where $Crisis$ is a dummy variable that takes a value of 0 from 2003Q1 to 2007Q12 and a value of 1 from 2008-Q1 to 2013-Q12.

An equation of such form allows to account both for the effect of the crisis on the intercept and on the coefficient (i.e. the slope) of the $Loans$ variable. The regression equation can be rewritten as follows:

For the pre-crisis period (i.e. $Crisis$ = 0):

$$\Delta GDPtrend_{it} = \beta_1 \Delta Loans_{it} + \beta_2 \Delta CPI_{it} + \beta_3 Govexp_{it} + \beta_4 CISS_t + \alpha_i + \epsilon_{it}$$

For the post-crisis period (i.e. $Crisis$ = 1):

$$\Delta GDPtrend_{it} = (\alpha_i + \beta_5) + (\beta_1 + \beta_6)\Delta Loans_{it} + \beta_2 \Delta CPI_{it} + \beta_3 Govexp_{it} + \beta_4 CISS_t + \epsilon_{it}$$

Indeed, during the post-crisis years, the intercept of the regression will be given by $\alpha + \beta_5$ while the effect of *Loans* on the *GDPtrend* trend will be given by $\beta_1 + \beta_6$.

The results of the regression are reported in Table 5:

Table 5: Fixed-effect (within) regression: the crisis factor

A. General results

Number of obs	627
Number of groups	16
R^2 (within)	0,52
F(4,15)	40,42
Prob>F	0,00
corr (u_i, Xb)	-0,05

B. Coefficients analysis

GDPtrend	*Coef.*	*Std. Err.*	*t*	*p>|t|*	*[95% Conf.*	*Interval]*
Loans	0,0776	0,0436	1,780	0,095	-0,0154	0,1707
CPI	0,0027	0,0101	-0,270	0,794	-0,0188	0,0242
Govexp	-0,0444	0,0151	-2,930	0,010	-0,0767	-0,0122
CISS	-0,0081	0,0025	-3,220	0,006	-0,0134	-0,0027
Crisis	-0,0028	0,0014	-1,940	0,072	-0,0058	0,0003
Crisis*Loans	-0,0339	0,0382	-0,890	0,388	-0,1153	0,0475
Cons	0,0323	0,0073	4,440	0,000	0,0168	0,0478
Sigma_u	0,0042					
Sigma_e	0,0046					
Rho	0,4631					

The explanatory variables are jointly significant. We observe that the *Crisis* dummy variable is significant at a ninety percent confidence level. Its coefficient corresponds to the discount in the trend component of GDP observed in the post-crisis years if all variables had a value of zero. In other words, the regression indicates that as of the first quarter of 2008, there was a discount (since the coefficient of *Crisis* is negative) of 0.002% in the growth rate of the trend component of GDP taking aside the influence of the other variables.

On the other hand, the coefficient for the variable *Crisis*Loans* is clearly not significant. It means that it cannot be asserted, from a statistical point of view, that there was a different effect of the growth rate of loans to the private on economic growth in the years before or after the 2008 financial crisis.

Core-periphery analysis

As was pointed out, the euro area is heterogeneous: countries do not share the same economic fundamentals nor the same evolution in terms of private sector lending.

An extended model is now proposed to account for this heterogeneity. Since a fixed-effect model is used, time-invariant variables cannot be included in the model[14] which means that the intercept effect cannot be estimated. However, the interaction effect can be estimated. Using a similar approach to Cesaroni and De Santis (2015), the regression equation becomes

$$\Delta GDPtrend_{it} = \beta_1 \Delta Loans_{it} + \beta_2 \Delta CPI_{it} + \beta_3 Govexp_{it} + \beta_4 CISS_t + \beta_5 (Core * \Delta Loans_{it}) + \alpha_i + \epsilon_{it}$$

Where $Core$ is a dummy variable that takes a value of 1 for Austria, Belgium, Finland, France, Germany and the Netherlands and a value of 0 for Greece, Ireland, Italy, Portugal, Slovenia and Spain. Cyprus, Luxembourg, Malta and Slovakia were retrieved from the initial model because of their size and/or because of their lack of clear belonging to either the core of the peripheral group of countries.

β_1 represents the effect of $Loans$ on $GDPtrend$ for peripheral countries while $\beta_1 + \beta_5$ is the effect for core countries. The results are shown below (Table 6):

[14] Since fixed effect model uses the variation over time, estimating the effect of a dummy that would take a value of 1 in some countries and a value of zero in others is impossible because such variable is time invariant.

Table 6: Fixed-effect (within) regression: core-periphery analysis

A. General results

Number of obs	490
Number of groups	12
R^2 (within)	0,61
F(4,15)	67,53
Prob>F	0,00
corr (u_i, Xb)	-0,35

B. Coefficients analysis

GDPtrend	*Coef.*	*Std. Err.*	*t*	*p>|t|*	*[95% Conf.*	*Interval]*
Loans	0,0536	0,0232	2,310	0,041	0,0026	0,1047
CPI	-0,0172	0,0081	-2,130	0,056	-0,0350	0,0006
Govexp	-0,0611	0,0160	-3,830	0,003	-0,0962	-0,0006
CISS	-0,0154	0,0026	5,970	0,000	-0,0211	-0,0097
Core*Loans	-0,0830	0,0177	-4,690	0,001	-0,1220	-0,0440
Cons	0,0405	0,0078	5,180	0,000	0,0233	0,0578

Sigma_u	0,0042
Sigma_e	0,0039
Rho	0,5349

The regressors are jointly significant. We observe that the R^2 value has increased compared to the other models which indicates a better fit. The results from Table 6B are striking: the coefficient for *Loans* is still significant and positive which indicates that in peripheral countries, an increase in the loans growth is accompanied by an increase in the trend component of GDP growth. However, the effect in core countries, obtained by summing the coefficient for *Loans* and *Core*Loans* is significant but slightly negative with a value of -0,0293672. This result can be interpreted as follow: in core countries, a one percent increase in the growth rate of the non-financial private credit corresponds to a 0,03 percent decrease in the trend component of the GDP growth rate. Clearly, any assessment of the deleveraging process undertaken in the euro area must take into account the fact that the same percentage of loans decrease will not have the same effect on GDP in core or in peripheral countries.

Conclusion

This study analysed the impact of bank deleveraging on economic growth in the euro area. The literature highlighted that when such sizing down of the balance sheet affects lending to the private sector, it can harm economic activity. The panel data analysis performed in the present paper confirms this result. Overall, it finds that a reduction in the growth rate of loans granted to the non-financial private sector is accompanied by a reduction of GDP growth. The coefficient obtained is significant but relatively low, which indicates that the effect should not be overestimated. About one half of the variation over time of the trend component of GDP is explained by the model. This result is satisfactory considering the small amount of variables included in the equation and the complexity of the dynamics that impact economic activity.

The robustness analyses provide some complementary insights. First, GDP growth can be hit by the deleveraging process through two of its major components, namely consumption and investment. This confirms the explanations developed in the literature: a cut in lending prevents households and non-financial corporations to consume and invest as much as they would like to, which dampens the economic activity. Second, these dynamics seem unaffected by the crisis factor even if the 2008 financial crisis has downturned economic output in Europe: there is apparently no bigger impact of loans on economic growth in a period of economic boom or in a period of recession. Third, the conclusions drawn here above hide a disparity between core and peripheral countries. In core countries, the regression indicates that a decrease in lending can actually be beneficial for economic performance even if the effect is relatively small.

However, in the wider context of the overall deleveraging process, loans and more broadly speaking asset reduction has not been the top priority since banks have so far favoured capital increase measures. This tendency is nonetheless likely to be challenged in the future as manoeuvring room shrinks for banks that have difficulties to raise more capital and that have already exhausted all non-core asset reduction possibilities.

The implications for policy in the euro area are multiple. First, the bank deleveraging process should be monitored to ensure that asset reduction remains limited to non-core assets. Moreover, measures should be undertaken to diversify the sources of financing of the non-financial private sector, especially small and medium enterprises, as proposed by the European Investment Bank in a report on investment and investment finance in Europe (2013). As was pointed out, euro area countries heavily rely on banks to finance their economy. This overexposes households and corporations to banks' financial (in)stability. The Capital Market Union project introduced by the European Commission in its 2014

Investment Plan that aims at enhancing the integration and diversification of capital markets in Europe so as to increase the financing possibilities of small enterprises could be a solution. Finally, the policy maker should take into account the different dynamics observed in core and peripheral countries in the euro area: any measure that would cause a drop in the lending to the private sector in peripheral countries could negatively affect already depressed economic activities.

While the above analyses have brought some important insights, one must remain aware that some important caveats subsist in the model.

First of all, data regarding the amount of loans granted to the non-financial private sector that were used in the analyses do not make a distinction between supply and demand factors. Although supply factors proved to have played an important role (see supra), it remains unclear how much of the loan decrease must be attributed to demand deleveraging pressures. Therefore, one must be careful when concluding, based on the above analyses, that banks bear the sole responsibility for the deleveraging process that can harm economic growth.

Second, as suggested by Takáts and Upper (2013), there might be a problem of endogeneity since the extent of deleveraging may depend on economic growth. For example, as pointed out by Feyen and Gonzalez del Mazo (2013), the economic downturn in Europe depresses the profitability and the growth of some asset classes of the banks which, in turn, prevents them from relying on retained earnings to enhance their balance sheet and eventually, increases the need to deleverage.

These interdependences between economic activity and credit might have further implications. Indeed, the importance of credit demand factors has just been highlighted, but it is well known that credit demand is also related to economic activity. As explained in the July 2013 monthly report from the German Central Bank, enterprises apply for loans when they see sale opportunities which are directly related to the overall level of economic activity. This means that an even more important share of the loan decrease observed over the time period could be caused by the contraction of GDP. However, Takáts and Upper believe that endogeneity might in fact not constitute too important a concern since most shocks affect credit and economic growth in the same direction. This could explain why the crisis factor has not been proven significant in the model.

Another caveat is caused by the inevitable omitted variable bias: both GDP and loans could be correlated to a common variable that is not included in the model. The choices made regarding the control variables were intended to cover some important dimensions that may affect economic growth, considering the availability of data, but in no way could they

exhaustively explain the complex phenomenon of economic activity. There is room here for complementary research to understand whether other variables should be included.

Moreover, linearity of the relationship between loans and economic growth was assumed here in accordance with other works performed on the topic. While we observed no significant differences in negative or in positive territory as was indicated by the crisis factor analysis, other kinds of non-linearities could still exist, such as threshold effects. Even if linear regression may have been able to estimate part of the relationship, there is again room for further research on the field.

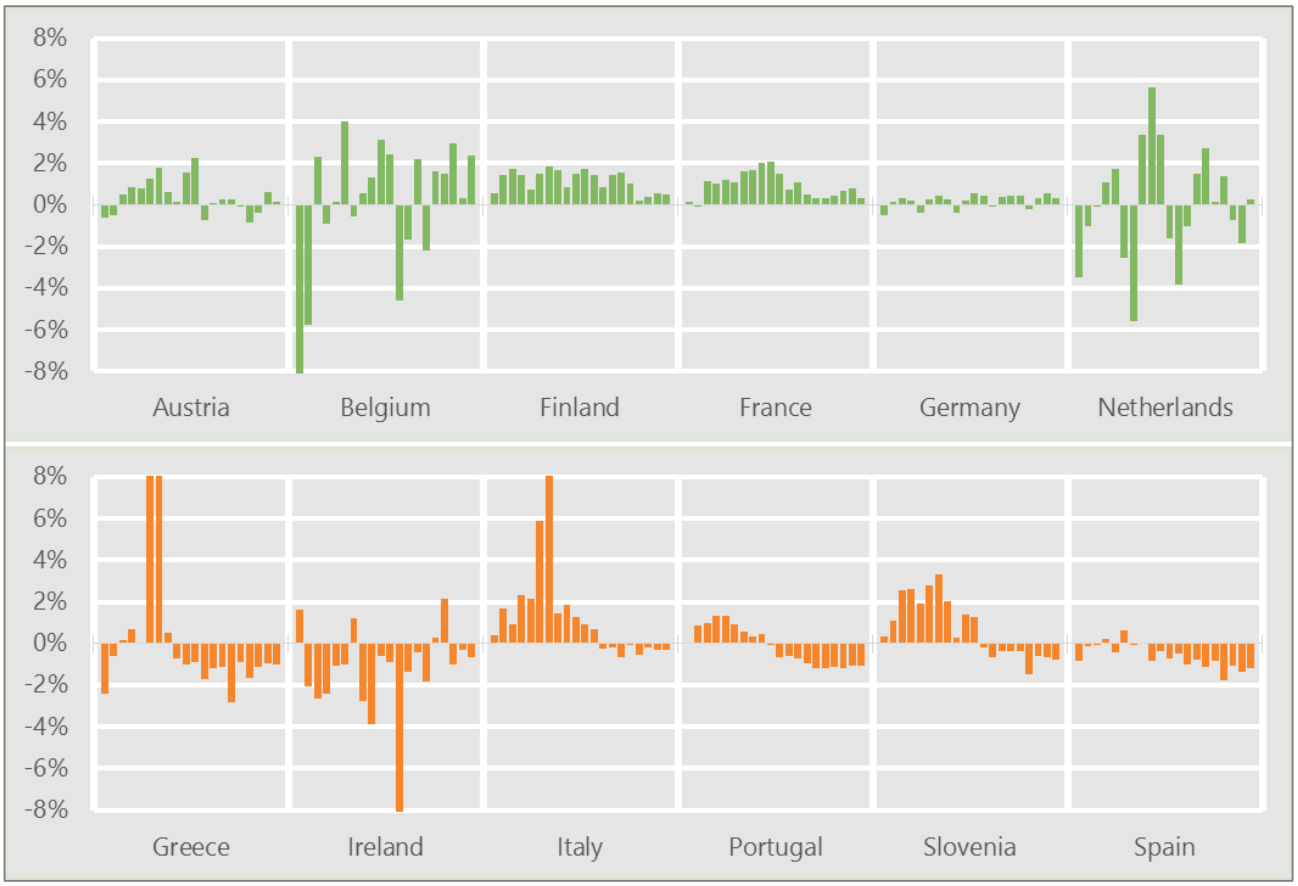
Finally, the model assumes that the impact of a change in the growth rate of loans granted to the private sector affects economic activity mainly after one quarter since a one period lag has been used on the main regressor. An interesting complementary investigation could be to analyse whether the relationship between private sector credit and economic growth evolves if we consider different lags. Such analysis could also give an idea of the persistence of the relationship.

While there remain some caveats to the model, the results obtained in this study help to understand how the banking sector has evolved over the past decade and highlight its crucial role for economic activity in Europe. Moreover, this paper may still provide a contribution to the discussion about banking regulation and policy in the aftermath of the tremendous financial crisis that massively impacted economies in Europe and elsewhere.

Appendices

Appendix A: Loans to households 2009-2013

(Source: ECB, personal insights)



Appendix B: Dataset by country

	Austria (AT)						Belgium (BE)						Cyprus (CY)						Finland (FI)					
Time period	GDP	Loans	CPI	CISS	Govexp	IC	GDP	Loans	CPI	CISS	Govexp	IC	GDP	Loans	CPI	CISS	Govexp	IC	GDP	Loans	CPI	CISS	Govexp	IC
2003Q1			0,10%	5,43%	51,00%				1,30%	5,43%	50,00%				2,90%	5,43%	40,00%				0,20%	5,43%	49,00%	
2003Q2	3,62%		0,10%	7,13%	51,77%	9,86%	4,62%		0,60%	7,13%	49,15%	3,20%	9,90%		-1,20%	7,13%	39,30%	-2,53%	7,19%		0,00%	7,13%	48,99%	7,48%
2003Q3	3,06%	-0,02%	0,40%	9,06%	52,43%	2,57%	-3,37%	2,06%	1,40%	9,06%	48,44%	-1,87%	0,59%		3,90%	9,06%	38,68%	-13,61%	0,71%	3,18%	1,00%	9,06%	48,99%	2,11%
2003Q4	-1,97%	1,10%	0,30%	8,67%	52,87%	-2,39%	8,70%	-0,23%	0,40%	8,67%	48,01%	7,97%	-0,04%		-1,90%	8,67%	38,22%	13,51%	5,03%	2,67%	0,20%	8,67%	48,99%	2,96%
2004Q1	-1,23%	0,63%	0,30%	7,16%	53,00%	-6,84%	-4,29%	-0,01%	1,40%	7,16%	48,00%	-3,55%	-3,51%		2,10%	7,16%	38,00%	4,32%	-7,87%	2,32%	-0,10%	7,16%	49,00%	-6,97%
2004Q2	3,53%	0,34%	0,30%	6,78%	52,74%	9,20%	4,88%	1,29%	-0,60%	6,78%	48,47%	4,24%	9,80%		-0,10%	6,78%	38,07%	2,42%	7,28%	2,60%	-0,10%	6,78%	49,02%	7,44%
2004Q3	4,57%	1,93%	0,20%	6,60%	52,22%	4,53%	-2,87%	1,11%	0,90%	6,60%	49,17%	-1,68%	2,90%		2,30%	6,60%	38,34%	-6,80%	0,43%	3,44%	0,70%	6,60%	49,04%	1,12%
2004Q4	-1,17%	0,93%	-0,10%	4,64%	51,58%	-0,41%	8,06%	0,86%	-0,80%	4,64%	49,79%	6,66%	1,06%		-0,80%	4,64%	38,69%	21,53%	5,98%	2,22%	-0,40%	4,64%	49,04%	4,46%
2005Q1	-2,85%	1,65%	0,40%	3,18%	51,00%	-9,32%	-5,48%	1,31%	1,90%	3,18%	50,00%	-4,93%	-4,70%		3,20%	3,18%	39,00%	-4,10%	-9,09%	2,66%	0,90%	3,18%	49,00%	-6,16%
2005Q2	4,72%	0,34%	-0,10%	3,68%	50,59%	12,28%	4,87%	1,80%	-0,30%	3,68%	49,59%	5,20%	8,79%		-0,80%	3,68%	39,17%	-4,38%	7,22%	2,27%	-0,10%	3,68%	48,90%	5,81%
2005Q3	2,99%	3,57%	0,90%	2,56%	50,32%	3,55%	-3,43%	2,41%	1,00%	2,56%	48,76%	-2,30%	3,11%		3,20%	2,56%	39,21%	-3,46%	-0,10%	4,25%	0,90%	2,56%	48,71%	2,75%
2005Q4	0,51%	6,10%	0,30%	4,19%	50,15%	-1,21%	9,77%	1,78%	0,30%	4,19%	47,79%	10,29%	0,36%		-1,50%	4,19%	39,14%	23,51%	5,60%	2,38%	0,10%	4,19%	48,42%	4,25%
2006Q1	-2,39%	2,52%	0,40%	4,58%	50,00%	-8,22%	-5,33%	3,10%	1,20%	4,58%	47,00%	-4,64%	-3,30%		2,90%	4,58%	39,00%	-3,84%	-6,90%	3,42%	0,70%	4,58%	48,00%	-5,15%
2006Q2	3,21%	0,87%	-0,60%	7,73%	49,83%	9,56%	4,58%	2,67%	-0,50%	7,73%	46,60%	2,05%	8,82%	2,55%	-0,80%	7,73%	38,81%	-1,76%	6,61%	2,02%	-0,50%	7,73%	47,45%	1,25%
2006Q3	4,56%	1,61%	0,10%	7,76%	49,61%	5,23%	-3,16%	2,34%	0,60%	7,76%	46,55%	-2,05%	1,25%	5,13%	2,50%	7,76%	38,57%	-9,28%	0,15%	3,04%	0,60%	7,76%	46,86%	4,25%
2006Q4	1,11%	2,22%	0,50%	6,83%	49,34%	-1,74%	9,38%	2,70%	0,40%	6,83%	46,72%	8,11%	0,33%	3,66%	-0,80%	6,83%	38,30%	26,39%	6,80%	2,64%	-0,10%	6,83%	46,34%	3,80%
2007Q1	-2,67%	0,75%	0,40%	5,56%	49,00%	-6,49%	-4,53%	1,95%	1,70%	5,56%	47,00%	-4,86%	-2,64%	2,34%	3,00%	5,56%	38,00%	-3,00%	-5,32%	2,71%	1,00%	5,56%	46,00%	-3,38%
2007Q2	3,75%	0,43%	-0,40%	7,63%	48,62%	8,37%	4,63%	3,53%	-0,40%	7,63%	47,29%	4,21%	9,01%	1,93%	-1,30%	7,63%	37,70%	2,41%	7,57%	2,78%	-0,40%	7,63%	45,94%	5,99%
2007Q3	2,37%	1,27%	0,30%	20,78%	48,37%	5,00%	-3,68%	2,42%	0,90%	20,78%	47,66%	-2,11%	2,44%	6,02%	2,00%	20,78%	37,51%	-10,34%	-0,23%	2,87%	0,70%	20,78%	46,23%	0,31%
2007Q4	2,28%	2,16%	-0,10%	26,52%	48,43%	-1,41%	8,70%	0,23%	-0,10%	26,52%	48,20%	11,51%	0,22%	5,65%	-0,60%	26,52%	37,56%	22,31%	6,74%	2,72%	-0,50%	26,52%	46,90%	5,89%
2008Q1	-3,30%	1,41%	1,20%	40,85%	49,00%	-7,83%	-5,19%	1,79%	2,00%	40,85%	49,00%	-4,70%	-2,22%	5,00%	2,50%	40,85%	38,00%	2,17%	-7,91%	3,41%	-0,20%	40,85%	48,00%	-5,68%
2008Q2	3,76%	2,58%	0,00%	44,72%	50,18%	11,46%	5,08%	3,45%	0,50%	44,72%	50,10%	3,47%	8,74%	5,98%	-0,70%	44,72%	38,89%	1,48%	7,14%	2,70%	0,10%	44,72%	49,53%	4,82%
2008Q3	1,07%	1,39%	0,70%	36,30%	51,66%	1,05%	-4,20%	1,35%	0,80%	36,30%	51,30%	-2,42%	1,05%	6,18%	1,80%	36,30%	40,02%	-2,87%	-1,39%	4,33%	0,90%	36,30%	51,23%	2,79%
2008Q4	-2,23%	1,50%	-0,20%	48,58%	53,07%	-2,16%	5,62%	-2,23%	0,10%	48,58%	52,35%	6,58%	-1,73%	8,34%	-1,70%	48,58%	41,15%	1,26%	1,76%	2,70%	-0,30%	48,58%	52,83%	-1,13%
2009Q1	-6,45%	3,03%	0,80%	43,46%	54,00%	-10,45%	-8,37%	-4,29%	1,30%	43,46%	53,00%	-9,98%	-6,57%	5,69%	3,70%	43,46%	42,00%	-6,53%	-12,68%	2,62%	0,10%	43,46%	54,00%	-10,15%
2009Q2	2,70%	1,10%	-0,30%	36,18%	54,17%	9,16%	4,31%	-4,72%	-0,40%	36,18%	53,09%	1,51%	6,18%	2,28%	-0,80%	36,18%	42,39%	0,83%	4,12%	0,25%	0,20%	36,18%	54,54%	3,46%
2009Q3	3,80%	-0,32%	0,60%	25,47%	53,73%	3,14%	-2,68%	-1,38%	1,20%	25,47%	52,78%	-1,67%	-1,21%	2,04%	2,20%	25,47%	42,40%	-2,23%	-0,61%	0,51%	1,00%	25,47%	54,58%	1,97%
2009Q4	2,70%	0,09%	0,20%	20,34%	52,92%	1,32%	8,55%	-0,15%	0,20%	20,34%	52,33%	9,41%	-0,61%	1,16%	-1,30%	20,34%	42,22%	2,41%	4,27%	-0,08%	0,70%	20,34%	54,33%	0,83%
2010Q1	-7,75%	0,10%	1,40%	16,59%	52,00%	-10,90%	-6,63%	-3,45%	1,90%	16,59%	52,00%	-7,07%	-2,61%	2,29%	2,30%	16,59%	42,00%	0,71%	-7,97%	-0,18%	0,50%	16,59%	54,00%	-6,68%
2010Q2	5,41%	0,37%	-0,20%	24,70%	51,18%	10,62%	6,61%	-1,06%	-0,50%	24,70%	51,97%	6,29%	7,14%	2,22%	-0,80%	24,70%	41,89%	3,02%	9,76%	0,86%	-0,10%	24,70%	53,77%	10,37%
2010Q3	4,97%	0,84%	0,90%	29,32%	50,55%	5,30%	-3,25%	2,86%	1,90%	29,32%	52,21%	-2,14%	1,00%	1,18%	1,80%	29,32%	41,87%	0,08%	-1,24%	1,77%	1,00%	29,32%	53,68%	0,69%
2010Q4	1,22%	1,34%	0,30%	32,02%	50,14%	-0,67%	9,11%	-2,56%	0,50%	32,02%	52,58%	10,33%	-1,01%	0,78%	-0,80%	32,02%	41,92%	-0,38%	6,87%	1,64%	0,10%	32,02%	53,75%	2,41%
2011Q1	-4,06%	0,68%	1,30%	31,41%	50,00%	-5,93%	-6,19%	1,10%	1,60%	31,41%	53,00%	-7,45%	-3,68%	0,82%	1,40%	31,41%	42,00%	3,10%	-6,59%	0,92%	0,20%	31,41%	54,00%	-4,16%
2011Q2	4,61%	0,49%	-0,60%	29,04%	50,14%	9,05%	5,04%	0,48%	0,00%	29,04%	53,36%	5,77%	8,19%	1,74%	-0,70%	29,04%	42,07%	-0,44%	6,72%	1,02%	0,10%	29,04%	54,42%	8,23%
2011Q3	2,54%	1,06%	1,00%	43,98%	50,45%	3,81%	-4,08%	2,67%	1,00%	43,98%	53,65%	-2,83%	-0,87%	2,31%	2,70%	43,98%	42,10%	-2,64%	-0,32%	2,01%	0,80%	43,98%	54,95%	-0,84%
2011Q4	-1,04%	1,93%	0,00%	52,11%	50,79%	-2,80%	8,50%	1,11%	0,20%	52,11%	53,86%	9,21%	-1,95%	1,96%	-1,30%	52,11%	42,09%	-3,97%	3,86%	1,89%	-0,20%	52,11%	55,50%	6,85%
2012Q1	-2,65%	0,05%	1,70%	46,26%	51,00%	-5,79%	-6,29%	-2,25%	1,30%	46,26%	54,00%	-7,70%	-4,97%	1,07%	2,80%	46,26%	42,00%	3,36%	-5,41%	1,72%	-0,30%	46,26%	56,00%	-6,98%
2012Q2	2,37%	0,23%	-0,30%	45,03%	50,98%	7,13%	4,36%	-0,28%	-0,10%	45,03%	54,07%	3,41%	7,63%	0,62%	-1,60%	45,03%	41,83%	0,08%	4,06%	1,41%	-0,10%	45,03%	56,37%	3,45%
2012Q3	3,82%	0,60%	1,60%	43,06%	50,77%	3,11%	-4,26%	1,02%	1,20%	43,06%	54,08%	-4,19%	-0,24%	1,94%	0,90%	43,06%	41,59%	-1,37%	-0,92%	1,74%	0,90%	43,06%	56,64%	-0,15%
2012Q4	0,09%	0,39%	-0,10%	32,80%	50,42%	-0,25%	8,26%	-2,28%	0,00%	32,80%	54,05%	10,84%	-4,82%	0,63%	-0,30%	32,80%	41,31%	-0,61%	2,70%	1,27%	0,00%	32,80%	56,84%	3,78%
2013Q1	-4,73%	-0,46%	1,60%	27,80%	50,00%	-10,35%	-6,77%	0,68%	1,80%	27,80%	54,00%	-7,85%	-6,83%	-0,55%	1,70%	27,80%	41,00%	-3,95%	-6,65%	0,52%	0,50%	27,80%	57,00%	-8,49%
2013Q2	2,84%	-0,73%	-0,20%	24,06%	49,58%	8,26%	5,41%	1,03%	0,50%	24,06%	53,95%	4,08%	4,57%	-0,01%	0,40%	24,06%	40,69%	-9,05%	6,47%	0,26%	-0,30%	24,06%	57,16%	6,60%
2013Q3	4,14%	-0,15%	1,60%	20,82%	49,23%	5,31%	-4,08%	2,07%	1,10%	20,82%	53,92%	-4,59%	-0,13%	-3,42%	1,20%	20,82%	40,41%	-1,45%	-1,12%	0,71%	0,40%	20,82%	57,36%	0,06%
2013Q4	0,78%	0,25%	0,80%	14,40%	49,02%	-0,30%	8,70%	-0,19%	0,50%	14,40%	53,93%	9,55%	-5,16%	-2,09%	0,00%	14,40%	40,17%	4,66%	3,51%	0,49%	0,30%	14,40%	57,63%	3,18%

Time period	France (FR)						Germany (DE)						Greece (GR)						Ireland (IE)					
	GDP	Loans	CPI	CISS	Govexp	IC	GDP	Loans	CPI	CISS	Govexp	IC	GDP	Loans	CPI	CISS	Govexp	IC	GDP	Loans	CPI	CISS	Govexp	IC
2003Q1			0,20%	5,43%	52,00%				0,30%	5,43%	47,00%				3,30%	5,43%					0,70%	5,43%	33,00%	
2003Q2	0,57%		0,40%	7,13%	52,00%	0,41%	1,05%		0,40%	7,13%	46,66%	0,95%	8,76%		-0,30%	7,13%		2,11%	3,21%		-0,40%	7,13%	33,02%	1,98%
2003Q3	-1,19%	0,79%	0,50%	9,06%	52,00%	-1,40%	4,75%	-0,28%	-0,50%	9,06%	46,35%	4,52%	5,55%	4,43%	4,10%	9,06%		-1,12%	-1,70%	2,90%	0,60%	9,06%	33,03%	0,00%
2003Q4	5,88%	0,50%	-0,10%	8,67%	52,00%	5,49%	0,25%	0,06%	0,90%	8,67%	46,12%	-0,28%	-0,74%	5,11%	0,20%	8,67%		8,68%	11,89%	4,62%	0,40%	8,67%	33,03%	12,94%
2004Q1	-0,92%	0,59%	0,30%	7,16%	52,00%	-0,45%	-3,11%	0,00%	0,50%	7,16%	46,00%	-4,56%	-6,02%	2,99%	3,70%	7,16%		-5,35%	-5,68%	5,32%	1,10%	7,16%	33,00%	-7,25%
2004Q2	1,33%	1,07%	-0,20%	6,78%	52,00%	1,72%	1,21%	-0,67%	-0,20%	6,78%	46,01%	0,81%	9,62%	4,09%	-0,60%	6,78%		5,68%	5,89%	6,03%	0,20%	6,78%	32,95%	6,62%
2004Q3	-2,22%	2,02%	0,30%	6,60%	52,00%	-1,90%	3,29%	0,05%	-0,70%	6,60%	46,08%	5,99%	5,03%	4,10%	4,00%	6,60%		-3,30%	-2,94%	6,58%	0,50%	6,60%	32,91%	-1,70%
2004Q4	5,75%	2,10%	-0,20%	4,64%	52,00%	5,71%	0,44%	-0,01%	0,90%	4,64%	46,10%	-0,21%	-0,82%	3,76%	-0,20%	4,64%		8,47%	7,57%	8,00%	0,00%	4,64%	32,91%	9,08%
2005Q1	-1,24%	1,66%	1,30%	3,18%	52,00%	-0,50%	-4,69%	-0,20%	0,90%	3,18%	46,00%	-6,76%	-8,07%	3,48%	2,30%	3,18%		-4,98%	-1,31%	7,23%	1,20%	3,18%	33,00%	-0,17%
2005Q2	2,24%	1,11%	-0,50%	3,68%	52,00%	2,02%	2,92%	-0,72%	-0,10%	3,68%	45,69%	3,73%	7,24%	3,71%	-2,70%	3,68%		-0,35%	5,22%	5,29%	0,10%	3,68%	33,20%	2,65%
2005Q3	-2,99%	2,67%	0,60%	2,56%	52,01%	-2,73%	3,29%	-0,08%	-0,10%	2,56%	45,22%	4,91%	7,18%	4,40%	3,70%	2,56%		1,37%	-2,87%	6,14%	0,80%	2,56%	33,47%	-1,11%
2005Q4	5,77%	2,34%	0,20%	4,19%	52,01%	6,13%	0,28%	0,15%	1,00%	4,19%	44,64%	0,01%	-1,22%	3,07%	-0,10%	4,19%		9,59%	8,22%	6,50%	-0,20%	4,19%	33,76%	11,50%
2006Q1	-0,84%	2,51%	0,50%	4,58%	52,00%	-0,80%	-2,04%	0,07%	0,70%	4,58%	44,00%	-3,09%	-4,71%	4,31%	2,90%	4,58%	44,00%	-1,81%	0,04%	6,70%	0,80%	4,58%	34,00%	-0,81%
2006Q2	2,03%	3,14%	-0,40%	7,73%	51,99%	1,94%	1,33%	0,59%	-0,30%	7,73%	43,37%	1,46%	8,80%	4,73%	-1,10%	7,73%	48,55%	4,67%	1,57%	6,23%	-0,30%	7,73%	34,19%	0,47%
2006Q3	-1,80%	3,12%	0,00%	7,76%	51,98%	-1,56%	4,32%	0,26%	-1,00%	7,76%	42,80%	5,42%	4,38%	4,43%	2,80%	7,76%	49,14%	-3,31%	1,52%	6,60%	-0,20%	7,76%	34,46%	-0,88%
2006Q4	6,41%	2,09%	0,40%	6,83%	51,98%	6,26%	1,41%	0,54%	0,80%	6,83%	42,32%	-1,48%	-0,65%	3,18%	-0,10%	6,83%	47,66%	9,80%	2,55%	5,27%	0,40%	6,83%	35,00%	9,47%
2007Q1	-1,47%	2,43%	0,90%	5,56%	52,00%	-1,36%	-1,23%	0,02%	0,40%	5,56%	42,00%	-1,36%	-4,74%	2,12%	2,90%	5,56%	46,00%	-0,78%	4,88%	5,90%	1,30%	5,56%	36,00%	2,06%
2007Q2	1,77%	2,32%	-0,40%	7,63%	52,06%	2,06%	0,48%	-0,42%	-0,30%	7,63%	41,87%	0,44%	8,41%	4,01%	-0,80%	7,63%	45,67%	1,90%	-0,43%	3,79%	-0,20%	7,63%	37,54%	-3,77%
2007Q3	-1,43%	2,93%	0,40%	20,78%	52,21%	-1,22%	4,43%	0,11%	-0,30%	20,78%	41,97%	5,83%	5,02%	5,38%	3,10%	20,78%	46,55%	0,12%	-4,63%	4,44%	0,50%	20,78%	39,32%	-3,34%
2007Q4	5,97%	3,57%	0,10%	26,52%	52,50%	6,23%	0,26%	0,55%	0,50%	26,52%	42,34%	-1,25%	-2,61%	4,18%	-0,20%	26,52%	48,16%	8,24%	7,12%	4,10%	0,00%	26,52%	40,94%	11,42%
2008Q1	-1,99%	2,73%	0,80%	40,85%	53,00%	-2,30%	-2,20%	0,66%	0,90%	40,85%	43,00%	-2,43%	-4,96%	2,89%	2,60%	40,85%	50,00%	-4,35%	-5,19%	3,71%	1,60%	40,85%	42,00%	-4,25%
2008Q2	1,35%	2,64%	0,00%	44,72%	53,73%	1,75%	1,57%	1,16%	0,70%	44,72%	43,95%	1,67%	8,32%	4,21%	-0,80%	44,72%	51,63%	4,48%	-2,71%	2,66%	0,40%	44,72%	42,32%	-6,23%
2008Q3	-2,81%	2,20%	0,30%	36,30%	54,57%	-2,57%	2,20%	0,77%	-0,80%	36,30%	45,06%	5,37%	4,76%	4,00%	2,90%	36,30%	52,90%	-1,73%	-0,06%	2,26%	0,80%	36,30%	42,64%	-0,34%
2008Q4	3,58%	2,11%	-0,20%	48,58%	55,38%	3,43%	-2,56%	0,83%	0,70%	48,58%	46,13%	-3,14%	-5,09%	2,78%	-0,30%	48,58%	53,72%	1,28%	-1,56%	1,29%	-0,30%	48,58%	43,88%	-1,26%
2009Q1	-5,01%	1,89%	0,60%	43,46%	56,00%	-5,26%	-6,80%	1,17%	0,40%	43,46%	47,00%	-5,39%	-12,10%	1,43%	2,50%	43,46%	54,00%	-11,38%	-6,49%	-1,84%	0,90%	43,46%	47,00%	-9,36%
2009Q2	0,48%	0,30%	0,00%	36,18%	56,33%	0,03%	0,66%	-0,09%	0,30%	36,18%	47,51%	-0,43%	14,30%	-2,15%	-0,50%	36,18%	53,71%	8,90%	-0,14%	-1,12%	-0,10%	36,18%	52,46%	-3,86%
2009Q3	-2,15%	-0,59%	0,30%	25,47%	56,40%	-2,32%	5,43%	-0,48%	-0,40%	25,47%	47,67%	6,33%	3,28%	-2,27%	2,60%	25,47%	53,09%	-1,56%	-3,26%	-2,17%	0,40%	25,47%	58,76%	-5,62%
2009Q4	5,87%	-0,16%	0,20%	20,34%	56,26%	6,81%	0,90%	-0,41%	0,80%	20,34%	47,49%	-1,92%	-0,70%	-1,59%	-0,40%	20,34%	52,42%	6,65%	-0,83%	-2,59%	-0,30%	20,34%	63,94%	8,84%
2010Q1	-2,54%	0,40%	0,70%	16,59%	56,00%	-3,01%	-2,68%	-0,45%	1,20%	16,59%	47,00%	-1,84%	-12,31%	-0,18%	3,90%	16,59%	52,00%	-10,10%	0,04%	-2,82%	0,80%	16,59%	66,00%	-10,28%
2010Q2	2,38%	0,76%	-0,30%	24,70%	55,67%	2,81%	2,33%	-0,47%	0,10%	24,70%	46,26%	2,91%	7,62%	0,89%	-1,40%	24,70%	52,03%	0,29%	1,56%	-3,82%	-0,10%	24,70%	63,64%	0,22%
2010Q3	-1,60%	0,91%	0,30%	29,32%	55,35%	-1,21%	4,74%	0,10%	-0,50%	29,32%	45,40%	5,55%	2,03%	11,83%	2,30%	29,32%	52,36%	-3,06%	0,67%	-5,47%	-0,10%	29,32%	58,18%	-1,38%
2010Q4	5,41%	0,82%	0,40%	32,02%	55,10%	5,28%	0,61%	0,03%	1,10%	32,02%	44,60%	-1,20%	-6,13%	20,08%	0,40%	32,02%	52,76%	-0,05%	-4,42%	-5,56%	0,10%	32,02%	51,64%	6,20%
2011Q1	-1,79%	1,20%	1,20%	31,41%	55,00%	-0,73%	-1,01%	0,07%	1,10%	31,41%	44,00%	-1,10%	-10,17%	-0,73%	4,20%	31,41%	53,00%	-5,67%	1,88%	-7,79%	0,80%	31,41%	46,00%	-4,78%
2011Q2	1,29%	1,37%	-0,30%	29,04%	55,09%	0,82%	0,44%	-0,15%	-0,30%	29,04%	43,73%	2,01%	8,77%	-1,65%	-0,90%	29,04%	52,93%	1,63%	6,38%	-4,68%	-0,50%	29,04%	42,79%	1,30%
2011Q3	-2,35%	1,99%	0,50%	43,98%	55,34%	-2,52%	4,21%	0,15%	-0,30%	43,98%	43,72%	5,19%	4,41%	-1,03%	4,80%	43,98%	52,73%	-1,66%	-0,59%	-1,44%	0,30%	43,98%	41,63%	-3,11%
2011Q4	5,35%	1,58%	0,10%	52,11%	55,66%	4,69%	-0,75%	0,62%	0,60%	52,11%	43,85%	-1,85%	-8,44%	-0,22%	-0,30%	52,11%	52,67%	-1,75%	0,35%	-0,44%	-0,40%	52,11%	41,65%	7,62%
2012Q1	-2,09%	0,79%	1,30%	46,26%	56,00%	-1,84%	-0,79%	0,49%	0,90%	46,26%	44,00%	-2,16%	-10,57%	-1,67%	4,00%	46,26%	53,00%	-8,63%	-4,81%	-7,88%	1,40%	46,26%	42,00%	-6,92%
2012Q2	0,49%	0,39%	-0,10%	45,03%	56,30%	0,64%	-0,69%	0,12%	-0,30%	45,03%	44,08%	-0,34%	8,23%	-1,76%	-1,00%	45,03%	53,92%	2,32%	1,94%	-1,15%	-0,20%	45,03%	41,97%	-0,39%
2012Q3	-1,94%	0,26%	0,20%	43,06%	56,55%	-2,39%	4,24%	0,39%	-0,40%	43,06%	44,09%	5,32%	4,45%	-1,74%	3,90%	43,06%	55,34%	-4,51%	3,09%	-0,54%	0,00%	43,06%	41,54%	0,82%
2012Q4	5,02%	0,16%	0,20%	32,80%	56,78%	4,83%	-0,89%	0,50%	0,80%	32,80%	44,06%	-1,55%	-8,21%	-3,22%	-1,00%	32,80%	57,09%	2,94%	5,76%	-1,37%	0,10%	32,80%	40,84%	14,21%
2013Q1	-2,93%	0,12%	1,40%	27,80%	57,00%	-3,06%	-2,09%	-0,04%	1,10%	27,80%	44,00%	-2,41%	-9,96%	-1,42%	3,90%	27,80%	59,00%	-8,50%	-7,91%	-0,59%	1,00%	27,80%	40,00%	-10,57%
2013Q2	1,59%	0,07%	0,30%	24,06%	57,22%	1,42%	2,21%	-0,27%	0,60%	24,06%	43,94%	1,56%	8,91%	-1,42%	-0,70%	24,06%	60,91%	0,66%	1,84%	0,51%	0,20%	24,06%	39,16%	-2,90%
2013Q3	-2,26%	0,32%	0,10%	20,82%	57,45%	-1,90%	4,24%	0,16%	-0,40%	20,82%	43,91%	6,11%	4,66%	-0,66%	4,10%	20,82%	62,66%	-2,30%	3,77%	-1,53%	0,00%	20,82%	38,46%	4,81%
2013Q4	4,89%	0,09%	0,50%	14,40%	57,70%	4,58%	-0,85%	0,10%	0,80%	14,40%	43,92%	-2,49%	-7,46%	-1,33%	1,00%	14,40%	64,08%	4,05%	0,17%	-0,42%	0,30%	14,40%	38,03%	6,75%

Appendix B: Dataset by country (continued)

	Italy (IT)						Luxembourg (LU)						Malta (MT)						Netherlands (NL)					
Time period	GDP	Loans	CPI	CISS	Govexp	IC	GDP	Loans	CPI	CISS	Govexp	IC	GDP	Loans	CPI	CISS	Govexp	IC	GDP	Loans	CPI	CISS	Govexp	IC
2003Q1			1,40%	5,43%	47,00%				0,80%	5,43%	42,00%				1,70%	5,43%	45,00%				0,30%	5,43%	44,00%	
2003Q2	5,40%		-0,70%	7,13%	46,61%	3,74%	5,05%		0,20%	7,13%	41,94%	2,00%	7,73%		-2,50%	7,13%	44,07%	2,78%	2,53%		-0,60%	7,13%	43,79%	3,72%
2003Q3	-1,12%	1,20%	0,80%	9,06%	46,28%	-2,92%	-3,43%	-4,78%	1,50%	9,06%	41,90%	-3,90%	5,72%		-0,80%	9,06%	43,21%	-10,84%	-4,80%	1,36%	0,90%	9,06%	43,57%	-4,50%
2003Q4	8,47%	2,25%	-0,40%	8,67%	46,06%	9,59%	11,21%	-0,27%	0,60%	8,67%	41,92%	5,72%	-4,67%		0,40%	8,67%	42,50%	7,93%	6,94%	1,08%	-0,40%	8,67%	43,31%	6,04%
2004Q1	-8,15%	2,18%	1,60%	7,16%	46,00%	-6,67%	-6,33%	-0,70%	0,40%	7,16%	42,00%	-4,30%	-5,88%		1,00%	7,16%	42,00%	-4,44%	-2,05%	0,92%	0,30%	7,16%	43,00%	-3,28%
2004Q2	6,77%	1,85%	-0,60%	6,78%	46,14%	4,92%	5,28%	-1,07%	-0,10%	6,78%	42,15%	10,78%	4,57%		-3,90%	6,78%	41,77%	7,11%	3,10%	1,37%	-1,00%	6,78%	42,64%	3,66%
2004Q3	-2,64%	1,80%	0,70%	6,60%	46,41%	-3,40%	-1,21%	0,68%	1,00%	6,60%	42,29%	-5,69%	7,71%		0,00%	6,60%	41,74%	-2,42%	-4,60%	1,91%	1,10%	6,60%	42,29%	-4,21%
2004Q4	8,98%	1,66%	0,00%	4,64%	46,72%	11,03%	8,12%	-2,17%	-0,80%	4,64%	42,27%	10,01%	-5,34%		1,00%	4,64%	41,85%	12,31%	7,77%	1,89%	-1,00%	4,64%	42,05%	6,37%
2005Q1	-9,42%	2,28%	2,20%	3,18%	47,00%	-8,25%	-1,43%	-1,60%	1,30%	3,18%	42,00%	-6,05%	-5,81%		1,10%	3,18%	42,00%	-9,10%	-2,29%	1,85%	0,30%	3,18%	42,00%	-4,01%
2005Q2	6,97%	3,07%	-1,20%	3,68%	47,17%	5,22%	5,31%	1,99%	-0,40%	3,68%	41,39%	9,27%	11,75%		-0,50%	3,68%	42,13%	7,14%	4,29%	1,42%	-1,10%	3,68%	42,19%	5,40%
2005Q3	-2,99%	1,23%	0,80%	2,56%	47,21%	-3,29%	-1,52%	3,14%	0,70%	2,56%	40,58%	-7,69%	6,81%	1,72%	-0,10%	2,56%	42,19%	-2,10%	-4,56%	2,10%	1,20%	2,56%	42,51%	-3,39%
2005Q4	9,75%	2,21%	-0,70%	4,19%	47,15%	11,09%	6,69%	0,64%	-1,20%	4,19%	39,72%	20,73%	-4,04%	0,22%	-0,80%	4,19%	42,16%	10,68%	7,88%	2,46%	-0,40%	4,19%	42,83%	6,84%
2006Q1	-8,28%	1,76%	2,10%	4,58%	47,00%	-6,29%	2,25%	2,72%	0,60%	4,58%	39,00%	-11,84%	-5,75%	3,81%	2,60%	4,58%	42,00%	-2,44%	-1,18%	1,81%	0,60%	4,58%	43,00%	-2,21%
2006Q2	6,42%	2,43%	-0,80%	7,73%	46,76%	4,04%	2,81%	1,70%	-0,20%	7,73%	38,53%	2,49%	9,87%	3,55%	-4,40%	7,73%	41,70%	5,71%	3,17%	0,21%	-0,80%	7,73%	42,92%	5,01%
2006Q3	-2,75%	2,51%	1,00%	7,76%	46,49%	-2,80%	-1,49%	2,59%	0,00%	7,76%	38,27%	-4,10%	5,79%	5,66%	-0,20%	7,76%	41,35%	-4,96%	-4,91%	2,34%	0,90%	7,76%	42,65%	-3,67%
2006Q4	8,82%	2,54%	-0,10%	6,83%	46,22%	8,88%	10,13%	2,50%	0,60%	6,83%	38,13%	19,98%	-5,54%	4,13%	0,40%	6,83%	41,08%	-1,33%	8,52%	0,50%	-0,10%	6,83%	42,31%	7,57%
2007Q1	-7,21%	2,78%	2,30%	5,56%	46,00%	-5,89%	-0,23%	0,11%	1,00%	5,56%	38,00%	-8,71%	-0,56%	2,47%	1,90%	5,56%	41,00%	-2,79%	-0,97%	1,02%	1,50%	5,56%	42,00%	-3,04%
2007Q2	5,63%	2,87%	-0,40%	7,63%	45,88%	3,50%	5,23%	5,65%	-0,40%	7,63%	37,85%	5,72%	6,28%	3,72%	-2,30%	7,63%	41,18%	4,74%	2,98%	1,83%	-1,10%	7,63%	41,82%	4,45%
2007Q3	-1,89%	1,97%	1,40%	20,78%	45,95%	-2,01%	-4,36%	3,51%	0,90%	20,78%	37,83%	-3,51%	6,74%	1,15%	-0,20%	20,78%	41,52%	1,80%	-4,00%	1,41%	1,50%	20,78%	41,87%	-2,73%
2007Q4	7,72%	3,11%	-0,50%	26,52%	46,30%	8,42%	6,41%	2,39%	-0,10%	26,52%	38,15%	11,06%	-4,99%	1,15%	0,00%	26,52%	41,84%	16,25%	8,73%	1,43%	-0,70%	26,52%	42,24%	6,38%
2008Q1	-7,96%	3,60%	2,40%	40,85%	47,00%	-6,53%	-2,69%	3,85%	1,30%	40,85%	39,00%	-9,43%	-1,57%	4,44%	1,50%	40,85%	42,00%	-13,92%	-1,93%	0,83%	1,20%	40,85%	43,00%	-3,22%
2008Q2	5,69%	1,60%	-0,10%	44,72%	48,09%	4,06%	-0,69%	4,56%	0,20%	44,72%	40,49%	3,08%	7,94%	4,11%	-1,80%	44,72%	41,88%	14,11%	2,13%	3,47%	-0,70%	44,72%	44,19%	4,47%
2008Q3	-3,51%	0,50%	1,10%	36,30%	49,32%	-3,29%	-4,43%	3,77%	0,50%	36,30%	42,27%	4,68%	6,35%	5,54%	-1,90%	36,30%	41,59%	-5,84%	-4,56%	2,45%	0,60%	36,30%	45,61%	-3,77%
2008Q4	5,39%	1,48%	-0,60%	48,58%	50,39%	6,11%	6,14%	4,29%	-0,50%	48,58%	43,92%	3,33%	-5,68%	3,67%	-0,70%	48,58%	41,24%	9,18%	6,84%	2,02%	-0,60%	48,58%	46,97%	5,71%
2009Q1	-10,93%	1,03%	2,90%	43,46%	51,00%	-9,84%	-8,83%	6,25%	1,00%	43,46%	45,00%	-19,56%	-6,94%	2,90%	3,70%	43,46%	41,00%	-10,22%	-6,25%	-0,12%	1,20%	43,46%	48,00%	-5,58%
2009Q2	4,74%	0,56%	-0,40%	36,18%	50,94%	2,10%	0,97%	4,36%	0,20%	36,18%	45,19%	14,33%	5,38%	1,39%	-2,40%	36,18%	40,95%	0,06%	0,02%	-2,17%	-0,70%	36,18%	48,51%	1,18%
2009Q3	-1,01%	0,00%	1,90%	25,47%	50,39%	-1,10%	0,22%	-0,28%	0,80%	25,47%	44,70%	-5,98%	6,68%	0,40%	-0,10%	25,47%	41,02%	8,54%	-4,41%	-0,01%	2,10%	25,47%	48,57%	-4,31%
2009Q4	6,03%	0,07%	-0,20%	20,34%	49,65%	7,01%	5,96%	-4,94%	0,10%	20,34%	43,86%	11,79%	-2,68%	1,05%	0,20%	20,34%	41,08%	0,73%	7,87%	0,34%	-1,00%	20,34%	48,35%	6,30%
2010Q1	-7,64%	0,30%	3,00%	16,59%	49,00%	-5,59%	-0,21%	-3,38%	1,30%	16,59%	43,00%	-3,82%	0,12%	2,13%	1,90%	16,59%	41,00%	-1,52%	-3,50%	1,03%	1,80%	16,59%	48,00%	-4,31%
2010Q2	5,37%	0,42%	-0,80%	24,70%	48,66%	3,93%	5,92%	0,36%	-0,50%	24,70%	42,39%	11,95%	3,04%	2,77%	-2,70%	24,70%	40,71%	-4,22%	3,51%	1,47%	-1,00%	24,70%	47,65%	6,01%
2010Q3	-0,79%	2,24%	1,50%	29,32%	48,60%	-1,00%	-2,17%	-0,91%	0,40%	29,32%	42,05%	-10,40%	8,01%	0,57%	-1,30%	29,32%	40,34%	10,21%	-4,33%	-1,77%	1,30%	29,32%	47,36%	-6,12%
2010Q4	6,06%	4,29%	-0,30%	32,02%	48,74%	7,42%	9,22%	-0,53%	0,40%	32,02%	41,93%	11,14%	-2,47%	-1,48%	1,10%	32,02%	40,04%	6,48%	8,66%	-3,79%	-0,50%	32,02%	47,13%	6,91%
2011Q1	-7,92%	1,04%	3,80%	31,41%	49,00%	-6,60%	-3,83%	-1,04%	1,10%	31,41%	42,00%	-3,24%	-3,11%	1,60%	2,80%	31,41%	40,00%	-6,10%	-3,38%	3,25%	1,60%	31,41%	47,00%	-2,88%
2011Q2	5,51%	2,62%	-0,90%	29,04%	49,29%	2,73%	1,82%	0,39%	-0,50%	29,04%	42,21%	4,53%	3,19%	-0,06%	-1,60%	29,04%	40,32%	-1,79%	1,82%	4,25%	-1,20%	29,04%	46,97%	3,21%
2011Q3	-0,76%	0,66%	3,70%	43,98%	49,57%	-1,56%	-1,82%	0,28%	1,00%	43,98%	42,49%	-0,60%	6,12%	-0,02%	-0,30%	43,98%	40,87%	-3,42%	-4,81%	2,80%	0,20%	43,98%	47,01%	-4,90%
2011Q4	4,49%	0,90%	-0,60%	52,11%	49,82%	4,32%	10,63%	0,35%	-0,20%	52,11%	42,77%	7,23%	-5,09%	1,22%	1,20%	52,11%	41,49%	4,56%	7,32%	-0,70%	-0,40%	52,11%	47,03%	5,21%
2012Q1	-8,00%	0,40%	4,30%	46,26%	50,00%	-7,09%	-6,99%	-1,10%	1,00%	46,26%	43,00%	-2,89%	-2,25%	2,29%	2,60%	46,26%	42,00%	-3,51%	-3,55%	-2,08%	1,30%	46,26%	47,00%	-3,66%
2012Q2	3,70%	-0,94%	-0,70%	45,03%	50,09%	0,83%	1,70%	-0,67%	-0,60%	45,03%	43,11%	2,89%	5,30%	2,21%	-2,30%	45,03%	42,26%	8,17%	2,06%	-0,38%	-1,10%	45,03%	46,86%	4,00%
2012Q3	-1,18%	-0,42%	3,80%	43,06%	50,10%	-1,57%	-1,92%	-1,04%	1,30%	43,06%	43,13%	-3,55%	6,12%	1,09%	-0,40%	43,06%	42,29%	-5,17%	-6,15%	1,99%	0,10%	43,06%	46,62%	-4,75%
2012Q4	4,71%	-0,94%	0,00%	32,80%	50,06%	4,86%	11,15%	0,13%	-0,40%	32,80%	43,08%	4,93%	-4,62%	0,91%	0,10%	32,80%	42,18%	2,90%	8,35%	2,58%	-0,90%	32,80%	46,33%	5,68%
2013Q1	-7,70%	-0,51%	4,30%	27,80%	50,00%	-6,49%	-4,85%	-1,20%	1,00%	27,80%	43,00%	-4,15%	-2,43%	-0,63%	2,50%	27,80%	42,00%	3,51%	-3,57%	-0,59%	1,30%	27,80%	46,00%	-6,22%
2013Q2	3,73%	-0,83%	0,00%	24,06%	49,94%	0,85%	3,46%	0,44%	0,30%	24,06%	42,92%	5,60%	7,35%	-1,13%	-2,10%	24,06%	41,82%	-1,57%	1,70%	1,09%	-0,60%	24,06%	45,67%	4,10%
2013Q3	-0,18%	-1,12%	3,60%	20,82%	49,90%	0,02%	-3,07%	-0,82%	1,40%	20,82%	42,87%	-2,21%	5,17%	-1,92%	-0,90%	20,82%	41,71%	0,86%	-4,58%	-0,42%	-0,30%	20,82%	45,38%	-4,77%
2013Q4	4,65%	-1,03%	0,20%	14,40%	49,91%	4,99%	10,10%	-0,80%	0,50%	14,40%	42,89%	-2,48%	-4,57%	-1,22%	0,90%	14,40%	41,74%	1,38%	8,00%	-1,22%	0,40%	14,40%	45,14%	7,32%

	Portugal (PT)						Slovakia (SK)						Slovenia (SI)						Spain (ES)					
Time period	GDP	Loans	CPI	CISS	Govexp	IC	GDP	Loans	CPI	CISS	Govexp	IC	GDP	Loans	CPI	CISS	Govexp	IC	GDP	Loans	CPI	CISS	Govexp	IC
2003Q1			0,00%	5,43%	45,00%				-4,60%	5,43%	39,00%				-0,50%	5,43%	45,00%				1,20%	5,43%	38,00%	
2003Q2	6,11%		-0,80%	7,13%	45,30%	5,34%	11,83%		0,20%	7,13%	38,20%	10,91%	9,70%		-0,10%	7,13%	45,09%	8,95%	4,92%		-0,70%	7,13%	38,00%	3,83%
2003Q3	0,83%	1,65%	0,40%	9,06%	45,57%	-0,77%	2,70%		0,70%	9,06%	37,52%	1,96%	1,29%		-0,80%	9,06%	45,15%	1,00%	-4,12%	4,17%	0,80%	9,06%	38,00%	-4,73%
2003Q4	4,00%	0,66%	-0,10%	8,67%	45,82%	7,05%	5,36%		0,00%	8,67%	37,08%	6,30%	-0,11%		-0,10%	8,67%	45,13%	2,04%	9,21%	3,33%	-0,50%	8,67%	38,00%	11,85%
2004Q1	-6,83%	0,05%	0,20%	7,16%	46,00%	-6,78%	-3,43%		-4,10%	7,16%	37,00%	-6,12%	-5,70%		0,10%	7,16%	45,00%	-7,26%	-2,68%	3,38%	1,50%	7,16%	38,00%	-2,27%
2004Q2	7,03%	1,22%	0,20%	6,78%	46,11%	6,97%	6,79%		0,20%	6,78%	37,34%	9,92%	9,56%		-0,10%	6,78%	44,74%	12,38%	5,11%	3,19%	-1,20%	6,78%	37,99%	4,85%
2004Q3	0,21%	2,56%	0,80%	6,60%	46,15%	-1,13%	7,29%		-0,10%	6,60%	37,93%	9,41%	2,22%	3,62%	-0,90%	6,60%	44,43%	-0,11%	-3,06%	4,65%	0,90%	6,60%	37,99%	-3,73%
2004Q4	4,18%	1,46%	-0,40%	4,64%	46,11%	7,86%	5,04%		-0,40%	4,64%	38,56%	6,09%	1,37%	4,49%	-0,60%	4,64%	44,15%	4,00%	8,36%	3,86%	-1,10%	4,64%	37,99%	10,40%
2005Q1	-7,51%	0,46%	1,00%	3,18%	46,00%	-7,81%	-5,23%		-1,70%	3,18%	39,00%	-7,30%	-8,56%	3,66%	1,50%	3,18%	44,00%	-10,51%	-2,38%	4,29%	1,90%	3,18%	38,00%	-2,01%
2005Q2	7,39%	0,05%	-0,30%	3,68%	45,81%	7,15%	7,05%		0,40%	3,68%	39,09%	9,53%	14,42%	6,88%	-0,90%	3,68%	44,03%	11,73%	6,01%	4,45%	-0,60%	3,68%	38,03%	5,81%
2005Q3	-0,85%	2,46%	-0,20%	2,56%	45,57%	-3,07%	6,14%		0,60%	2,56%	38,89%	1,93%	-0,66%	4,97%	0,20%	2,56%	44,13%	-0,13%	-4,14%	7,05%	1,20%	2,56%	38,05%	-5,07%
2005Q4	5,21%	2,38%	-0,30%	4,19%	45,30%	8,38%	3,48%		-1,20%	4,19%	38,49%	11,75%	0,51%	4,59%	-0,30%	4,19%	44,17%	6,36%	9,21%	7,72%	-0,60%	4,19%	38,05%	11,28%
2006Q1	-7,90%	1,62%	1,60%	4,58%	45,00%	-7,41%	-5,13%		-1,90%	4,58%	38,00%	-8,36%	-5,74%	4,94%	1,00%	4,58%	44,00%	-9,44%	-1,84%	5,53%	1,20%	4,58%	38,00%	-0,93%
2006Q2	8,61%	2,36%	-0,60%	7,73%	44,71%	6,68%	11,03%		-0,20%	7,73%	37,51%	9,33%	13,01%	6,13%	-1,20%	7,73%	43,54%	10,35%	5,79%	5,82%	-1,20%	7,73%	37,90%	4,87%
2006Q3	-1,15%	4,58%	0,50%	7,76%	44,43%	-3,60%	5,09%	6,08%	-0,30%	7,76%	37,03%	4,08%	1,65%	6,00%	0,60%	7,76%	42,93%	3,11%	-4,77%	6,54%	0,30%	7,76%	37,80%	-5,86%
2006Q4	6,59%	2,65%	0,20%	6,83%	44,19%	8,39%	8,93%	4,08%	0,10%	6,83%	36,53%	10,50%	1,01%	4,68%	1,10%	6,83%	42,35%	6,14%	9,13%	5,72%	-0,10%	6,83%	37,81%	11,20%
2007Q1	-6,76%	1,21%	1,60%	5,56%	44,00%	-7,15%	-2,18%	8,43%	-0,40%	5,56%	36,00%	-6,79%	-3,45%	5,45%	1,60%	5,56%	42,00%	-7,68%	-2,39%	5,66%	1,50%	5,56%	38,00%	-2,45%
2007Q2	7,36%	1,48%	-0,90%	7,63%	43,89%	7,54%	10,45%	3,47%	-0,20%	7,63%	35,47%	12,57%	12,21%	5,69%	-0,80%	7,63%	42,03%	12,62%	5,48%	4,48%	-1,20%	7,63%	38,44%	4,96%
2007Q3	-1,72%	3,21%	0,60%	20,78%	43,95%	-3,26%	7,33%	5,55%	0,40%	20,78%	35,13%	6,24%	2,69%	8,24%	0,50%	20,78%	42,41%	3,62%	-5,60%	4,85%	1,00%	20,78%	39,10%	-6,46%
2007Q4	5,90%	2,65%	-0,40%	26,52%	44,29%	9,44%	2,30%	6,75%	-0,40%	26,52%	35,22%	5,37%	-1,05%	8,49%	-0,30%	26,52%	43,09%	3,31%	10,10%	4,22%	-0,90%	26,52%	39,97%	12,79%
2008Q1	-8,18%	2,85%	1,60%	40,85%	45,00%	-7,62%	-2,51%	6,71%	-0,90%	40,85%	36,00%	-4,53%	-3,61%	6,60%	1,20%	40,85%	44,00%	-7,57%	-4,52%	2,79%	1,50%	40,85%	41,00%	-4,77%
2008Q2	6,98%	2,67%	0,20%	44,72%	46,14%	6,90%	11,83%	6,34%	0,10%	44,72%	37,58%	13,21%	12,34%	5,80%	0,20%	44,72%	45,07%	12,60%	5,20%	2,06%	-0,50%	44,72%	42,14%	3,91%
2008Q3	-1,96%	2,70%	1,00%	36,30%	47,51%	-3,24%	7,77%	4,71%	0,40%	36,30%	39,59%	6,88%	0,47%	4,95%	0,00%	36,30%	46,18%	2,43%	-6,30%	2,01%	0,50%	36,30%	43,28%	-8,24%
2008Q4	3,45%	1,55%	-0,30%	48,58%	48,88%	4,79%	-4,03%	5,79%	-0,40%	48,58%	41,56%	-1,22%	-4,97%	4,79%	-0,70%	48,58%	47,20%	-4,52%	6,92%	1,53%	-0,80%	48,58%	44,28%	7,70%
2009Q1	-10,54%	1,15%	1,70%	43,46%	50,00%	-11,84%	-11,70%	3,17%	-0,60%	43,46%	43,00%	-11,67%	-9,58%	2,71%	1,10%	43,46%	48,00%	-15,32%	-7,81%	0,99%	1,50%	43,46%	45,00%	-9,87%
2009Q2	6,14%	1,36%	-0,20%	36,18%	50,69%	4,47%	5,67%	0,99%	0,10%	36,18%	43,56%	0,10%	8,38%	1,07%	0,30%	36,18%	48,49%	6,66%	3,36%	-0,32%	-0,50%	36,18%	45,35%	1,44%
2009Q3	0,31%	1,10%	0,30%	25,47%	51,01%	-0,67%	5,84%	0,63%	0,00%	25,47%	43,39%	5,85%	0,44%	0,40%	0,70%	25,47%	48,75%	3,81%	-6,36%	-0,25%	0,50%	25,47%	45,39%	-5,94%
2009Q4	4,98%	0,42%	0,20%	20,34%	51,07%	6,76%	-2,13%	1,09%	-0,30%	20,34%	42,77%	-1,51%	-1,86%	0,81%	-0,50%	20,34%	48,88%	-1,66%	8,62%	-1,03%	-0,70%	20,34%	45,24%	10,65%
2010Q1	-8,39%	0,83%	1,80%	16,59%	51,00%	-7,80%	-5,52%	0,69%	0,00%	16,59%	42,00%	-5,93%	-8,00%	0,54%	1,60%	16,59%	49,00%	-9,57%	-5,83%	-0,51%	3,90%	16,59%	45,00%	-5,80%
2010Q2	6,99%	0,60%	-0,20%	24,70%	50,89%	7,75%	7,29%	0,15%	-0,40%	24,70%	41,30%	6,07%	11,39%	1,17%	-0,90%	24,70%	49,18%	12,06%	4,66%	-0,84%	-0,60%	24,70%	44,78%	3,89%
2010Q3	0,61%	0,39%	-0,50%	29,32%	50,71%	-3,88%	7,06%	0,80%	-0,10%	29,32%	40,73%	12,05%	-0,02%	1,51%	0,20%	29,32%	49,33%	-0,50%	-6,40%	0,20%	2,00%	29,32%	44,66%	-7,88%
2010Q4	2,67%	0,43%	0,10%	32,02%	50,43%	6,83%	-3,28%	2,10%	0,20%	32,02%	40,30%	-5,17%	-1,68%	0,85%	0,00%	32,02%	49,31%	1,54%	8,50%	-0,09%	0,20%	32,02%	44,71%	10,44%
2011Q1	-8,94%	-0,05%	1,10%	31,41%	50,00%	-9,71%	-6,34%	2,72%	-1,70%	31,41%	40,00%	-8,18%	-5,61%	-0,08%	1,80%	31,41%	49,00%	-7,62%	-5,32%	-0,14%	3,70%	31,41%	45,00%	-4,96%
2011Q2	5,77%	-0,81%	-0,80%	29,04%	49,41%	3,96%	8,47%	1,53%	-0,60%	29,04%	39,84%	11,43%	10,24%	0,08%	-1,30%	29,04%	48,35%	9,00%	4,79%	-1,28%	-1,10%	29,04%	45,56%	2,24%
2011Q3	-0,44%	0,99%	0,50%	43,98%	48,77%	-4,33%	5,80%	2,73%	0,50%	43,98%	39,80%	4,42%	-0,41%	0,27%	1,70%	43,98%	47,70%	0,01%	-6,81%	-0,93%	2,40%	43,98%	46,23%	-7,67%
2011Q4	1,79%	-0,72%	-0,80%	52,11%	48,25%	2,32%	-1,91%	2,50%	-0,10%	52,11%	39,86%	-4,29%	-3,44%	-0,33%	-1,30%	52,11%	47,44%	-1,69%	6,65%	-1,14%	-0,40%	52,11%	46,78%	8,80%
2012Q1	-7,58%	-0,92%	0,90%	46,26%	48,00%	-7,11%	-7,59%	1,16%	-1,20%	46,26%	40,00%	-10,01%	-5,29%	-0,96%	1,30%	46,26%	48,00%	-8,10%	-5,31%	-0,77%	3,90%	46,26%	47,00%	-5,14%
2012Q2	1,31%	-1,77%	-0,50%	45,03%	48,13%	-1,39%	7,69%	0,90%	0,00%	45,03%	40,20%	6,13%	6,03%	-1,31%	-1,80%	45,03%	49,67%	4,71%	4,33%	-1,41%	-1,30%	45,03%	46,73%	2,04%
2012Q3	1,95%	-1,56%	0,20%	43,06%	48,58%	-0,06%	5,93%	0,91%	0,30%	43,06%	40,44%	8,39%	0,17%	-0,75%	2,00%	43,06%	52,27%	-1,96%	-6,44%	-1,04%	2,80%	43,06%	46,05%	-8,45%
2012Q4	-0,50%	-1,58%	0,10%	32,80%	49,24%	2,95%	-3,53%	0,59%	-0,50%	32,80%	40,71%	-5,07%	-3,67%	-1,11%	-0,50%	32,80%	55,48%	-2,20%	6,14%	-1,83%	-0,50%	32,80%	45,09%	7,73%
2013Q1	-5,94%	-1,56%	3,00%	27,80%	50,00%	-7,26%	-7,77%	1,19%	-0,70%	27,80%	41,00%	-9,13%	-6,80%	-1,95%	0,90%	27,80%	59,00%	-7,75%	-4,60%	-2,90%	3,70%	27,80%	44,00%	-4,49%
2013Q2	4,44%	-1,08%	0,00%	24,06%	50,76%	2,89%	7,94%	1,17%	0,20%	24,06%	41,29%	5,34%	11,32%	-2,68%	-0,60%	24,06%	62,52%	9,56%	4,57%	-5,60%	0,00%	24,06%	42,91%	2,39%
2013Q3	2,80%	-1,01%	0,70%	20,82%	51,42%	1,34%	5,32%	0,56%	0,10%	20,82%	41,56%	9,91%	1,08%	-1,52%	0,70%	20,82%	65,73%	0,05%	-5,80%	-2,38%	1,90%	20,82%	41,95%	-6,52%
2013Q4	3,48%	-1,64%	0,40%	14,40%	51,87%	6,50%	-3,17%	1,23%	-0,20%	14,40%	41,80%	-1,46%	-1,92%	-1,35%	-0,50%	14,40%	68,33%	2,17%	6,29%	-2,03%	0,00%	14,40%	41,27%	9,27%

Appendix C: Description of the raw data

Variable	Frequency	Description	Source
GDP	Quarterly	Gross domestic product at market prices. Neither seasonally nor working day adjusted (Million €)	Eurostat (Retrieved on 15-02-2015)
Loans_H	Monthly	Outstanding amounts at the end of the period (stocks), MFIs excluding ESCB reporting sector - Loans, Total maturity, All currencies combined - Euro area (changing composition) counterpart, Households and non-profit institutions serving households (NPISH). Neither seasonally nor working day adjusted (Million €)	European Central Bank: statistical data warehouse (Retrieved on: 15-02-2015)
Loans_NFC	Monthly	Outstanding amounts at the end of the period (stocks), MFIs excluding ESCB reporting sector - Loans, Total maturity, All currencies combined - Euro area (changing composition) counterpart, Non-Financial corporations. Neither seasonally nor working day adjusted (Million €)	European Central Bank: statistical data warehouse (Retrieved on: 15-02-2015)
CPI	Monthly	Harmonised indice of consumer prices, overall index (indice: 2005=100)	European Central Bank: statistical data warehouse (Retrieved on 16-02-15)
Govexp	Annually	Total general government expenditure (% of GDP)	Eurostat (Retrieved on 16-02-15)
CISS	Monthly	Composite Indicator for Systemic Stress (from 0 to 100)	European Central Bank: statistical data warehouse (Retrieved on 30-03-2015)
Consumption	Quarterly	Final consumption expenditure of households and NPISH, current prices Non-seasonally adjusted (Million €)	Eurostat (Retrieved on 04-04-2015)
Investment	Quarterly	Gross fixed capital formation, current prices Non-seasonally adjusted (Million €)	Eurostat (Retrieved on 04-04-2015)

Appendix D: Correlation matrix by country

Austria

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	-0,09	1,00		
CISS	-0,12	0,20	1,00	
Govexp	-0,07	-0,06	0,10	1,00

Belgium

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	0,07	1,00		
CISS	-0,39	0,06	1,00	
Govexp	-0,52	0,08	0,71	1,00

Cyprus

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	0,07	1,00		
CISS	0,21	-0,10	1,00	
Govexp	-0,38	-0,06	0,64	1,00

Finland

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	0,11	1,00		
CISS	-0,23	-0,13	1,00	
Govexp	-0,73	0,04	0,62	1,00

France

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	-0,09	1,00		
CISS	-0,17	0,09	1,00	
Govexp	-0,68	0,14	0,68	1,00

Germany

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	0,11	1,00		
CISS	0,54	0,06	1,00	
Govexp	-0,31	0,06	-0,09	1,00

Greece

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	-0,05	1,00		
CISS	-0,25	0,01	1,00	
Govexp	-0,38	0,05	0,32	1,00

Ireland

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	0,10	1,00		
CISS	-0,66	-0,06	1,00	
Govexp	-0,71	-0,14	0,46	1,00

Italy

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	-0,29	1,00		
CISS	-0,34	0,22	1,00	
Govexp	-0,70	0,25	0,74	1,00

Luxembourg

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	-0,18	1,00		
CISS	0,18	0,04	1,00	
Govexp	-0,33	0,09	0,44	1,00

Malta

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	-0,07	1,00		
CISS	-0,04	0,07	1,00	
Govexp	0,11	-0,04	-0,32	1,00

Netherlands

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	-0,11	1,00		
CISS	-0,19	0,00	1,00	
Govexp	-0,34	0,06	0,70	1,00

Portugal

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	0,00	1,00		
CISS	-0,31	0,06	1,00	
Govexp	-0,64	0,12	0,50	1,00

Slovakia

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	-0,05	1,00		
CISS	-0,11	0,19	1,00	
Govexp	-0,76	0,10	0,43	1,00

Slovenia

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	-0,03	1,00		
CISS	-0,40	0,10	1,00	
Govexp	-0,77	-0,01	0,27	1,00

Spain

	Loans	CPI	CISS	Govexp
Loans	1,00			
CPI	-0,21	1,00		
CISS	-0,64	0,16	1,00	
Govexp	-0,83	0,25	0,86	1,00

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