1 Introduction

The economic recovery which began in 2013 has been accompanied by a prolongation of the decline in the aggregate stock of bank credit to firms and households…

The Spanish economy moved into recovery in the second half of 2013, after a long and severe crisis. However, the decline in the aggregate outstanding amount of bank credit (hereinafter "credit") extended to households and non-financial corporations has continued, although at a more moderate rate, against a background of deleveraging in these sectors, which, despite the significant progress made in recent years, has still to be completed. Indeed, the historical evidence shows that when deleveraging occurs in the wake of a financial crisis it tends to be slow and that, during the initial years, it is largely based on a contraction in the total amount of outstanding credit.[1]

… which raises the question of whether the availability of credit may affect the extent of the recovery

It is therefore worth analysing whether the availability of credit may be affecting the economic recovery under way and, if so, through what alternative channels the recovery might be financed. The literature on creditless recoveries (understood to be episodes in which output grows again following a recession, while the total amount of outstanding credit extended to the private sector declines) shows that they are not exceptional either in emerging or in advanced economies, although they are characterised by more moderate GDP growth than recoveries with credit growth. (See Box 5.1).

When the economy requires aggregate deleveraging the processes of reallocation of credit between sectors and agents play a key role in the behaviour of spending …

When, as is the case in Spain, the firming of a recovery requires a correction in the high level of aggregate private sector indebtedness, the possibility of obtaining credit to finance new spending decisions is limited. In this situation, the potential growth of such spending depends crucially on the degree to which the processes for reallocating credit between agents and sectors enable the volume of funds available to the most productive and dynamic ones to increase and continue to contribute to the restructuring of the balance sheets of others with a greater need to adjust. The more extensive these processes, the greater the economy's short and medium-term growth capacity.

… as does the availability of other alternative sources of funding

The possibilities for spending growth also depend on the role played by other sources of funding apart from credit, such as own funds, bond issuance and trade credit. These instruments may be substitutes for credit and relieve the effects of the greater limitations on the expansion of aggregate bank lending to non-financial firms. In the case of households, however, these alternative sources are hardly relevant.

This chapter analyses the role of credit and alternative instruments in financing economic growth during the current cycle

Against this background, the main objective of this chapter is to analyse the role of credit and alternative instruments in the financing of economic growth and to discuss the main implications for the current economic recovery. For this purpose, Section 2 reviews the recent aggregate developments in this source of funding and presents evidence on the scope of the processes for reallocating funds between sectors and agents. Section 3 considers which are the most important determinants of the recent behaviour of bank lending. Section 4 examines the role played by alternative sources of funding. Finally Section 5 summarises the main conclusions.

1 See, for example, O. Aspachs, S. Jódar-Rosell and J. Gual (2011), "Perspectivas de desapalancamiento en España", *Documentos de Economía "La Caixa",* and Mckinsey (2012), *Debt and deleveraging: uneven progress on the path to growth,* Mckinsey Global Institute.

2 Recent credit developments

2.1 THE AGGREGATE PERSPECTIVE

During the upturn, credit to households and non-financial corporations grew at a very high rate, which led the indebtedness of these sectors to reach very high levels both from a historical perspective and in comparison with other advanced countries.[2] Since 2009, the aggregate stock of loans to households and firms has been falling, which has enabled the aggregate private debt ratios to moderate gradually and to draw closer to the average euro area levels, although they still remain above them.

Since 2009, the aggregate outstanding amount of credit to the private sector has been falling …

… although in recent quarters the rate of decline has been slowing

The economic recovery that began in the second half of 2013 has been accompanied by a prolongation of the trend for the aggregate stock of credit to the private sector to contract, although the rate of decline has tended to slow gradually (see the upper panels of Chart 5.1).[3] The latest data, for March 2015, reflect a year-on-year decline of 4.1%. Therefore, although the net flow of credit is still negative, in parallel with the recovery in GDP there has been an increase in such flow, in line with what has been observed in other historical episodes of growth in the context of credit weakness, known in the literature as "creditless recoveries" (see Box 5.1). From this perspective, the recent buoyancy of domestic demand and the behaviour of credit does not seem to be out of line with the historical relationship between these two variables.

The slower contraction of credit is seen across institutional sectors and purposes

The sector breakdown shows that the pattern of recovery of credit flows extends to most institutional sectors and purposes, although the intensity of this process varies somewhat. In the case of households, the largest year-on-year fall was recorded in December 2013, with a decline of 5.1%. By March 2015, the rate of decline had decreased to 3.3%. The breakdown by purpose reveals that the moderation in the decline is apparent both in the case of housing credit and, to a greater extent, in that of consumer and other loans. In the first case, the year-on-year rate of decline decreased from 4.6% in December 2013 to 3.3% in March 2015, while in the second it fell from 6.9% to 3% over the same period.

As regards non-financial corporations, although the largest year-on-year fall in outstanding credit was recorded in February 2014, a change in trend began to be detected from mid-2013. The latest data (March 2015) show a decline of 5.2%, 4.5 percentage points (pp) down from May 2013. It should be noted, moreover, that the behaviour of this variable in recent quarters has partly been influenced by the changes in the composition of liabilities undertaken by some larger firms, which have replaced part of the credit supplied by resident institutions with other forms of financing, such as bond issuance and loans from the rest of the world. Thus, an indicator that includes these two other sources of financing shows a sharper recovery, which also dates back to mid-2013, with the rate of contraction reaching 2.7% in March 2015, 5.5 pp down from May 2013.

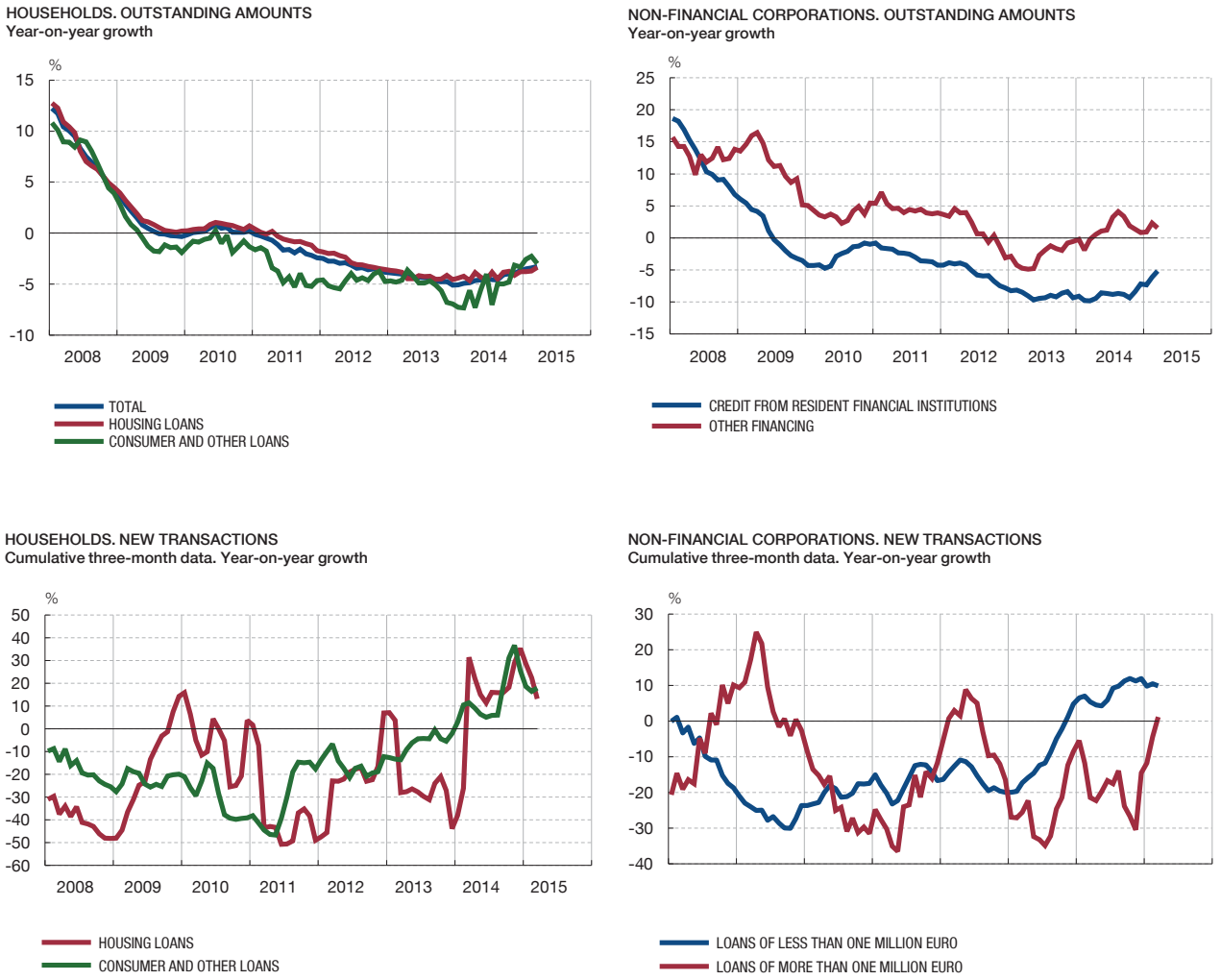
The macroeconomic implications associated with the evolution of the aggregate stock of credit may vary significantly depending on which are the main forces driving it …

The aggregate evolution of the outstanding amount of credit is determined by two opposing forces. The first is the course of gross funds raised by agents who borrow funds in order to implement new spending decisions (which raises the outstanding amount), while the second is the repayment of debt generated in the past (which has the opposite effect). The macroeconomic implications of any particular evolution of the aggregate stock of credit

2 For further details on the developments in the indebtedness of households and non-financial corporations in Spain, see Chapter 2 of the *Annual Report, 2013,* Banco de España.

3 In this chapter, unless otherwise stated, the year-on-year growth rates for the stock of credit are calculated as the ratio between the annual flow and the outstanding amount of a year earlier. Thus, changes in the stock that are not associated with credit transactions or repayments (such as loan write-offs, which are removed from credit institutions' balance sheets, or transfers to Sareb) do not affect this indicator.

AGGREGATE EVOLUTION OF CREDIT TO HOUSEHOLDS AND NON-FINANCIAL CORPORATIONS CHART 5.1



SOURCE: Banco de España.

may be very different depending on the individual behaviour of each of these two components. In general, debt repayments will have more positive effects on medium-term growth when they are concentrated among excessively indebted agents. In the case of firms, for example, the consequent balance sheet strengthening will reduce their vulnerability, facilitating future spending decisions and hiring. Likewise, increases in gross credit flows will support the recovery more if they go to households or corporations that, on account of their more solid starting point, are in a better position to undertake viable new spending plans. In the case of firms, moreover, the effects will be amplified if the funds reach the most productive ones.

… so that it is necessary to supplement the information on stocks with other indicators, such as volumes of new transactions, which have recovered since the end of 2013

Accordingly, to carry out a more accurate assessment of the macroeconomic implications of the evolution of credit it is necessary to supplement the analysis based on outstanding amounts with other indicators, such as, for example, the volume of new credit transactions. The information available on this variable shows a pattern of recovery since the end of 2013 in all segments, except in that of loans of more than one million euro to businesses, in which declines have continued to be seen, partly linked to the greater use of other sources of financing that has been discussed above (see the lower panels of Chart 5.1). Specifically, the volume of new credit transactions grew in 2014 at rates of 23% in the

segment of loans to households for house purchase, 15% in that of loans to households for other purposes, and 9% in that of loans of less than one million euro to businesses (which includes loans granted to SMEs). In 2015 to date, these volumes have continued to display positive year-on-year growth rates. The buoyancy of these gross flows of financing is consistent with the recovery in consumption and in residential and productive investment.

These results suggest, therefore, that the pattern of moderation in the contraction of aggregate outstanding amounts of credit does not stem from a reduction in the volume of repayments, but rather from the greater buoyancy of new credit. However, in order to analyse the extent to which the increase in activity in credit markets has been accompanied by a reallocation of credit between agents and sectors, with credit channelled to a greater degree towards those with a more robust financial position and higher productivity, it is necessary to use more disaggregated information. This is the main aim of the following sub-section.

2.2 PROCESSES OF REALLOCATION OF CREDIT BETWEEN SECTORS AND AGENTS

The breakdown of credit to firms by sector shows a sharper contraction in activities linked to the real estate market, in which the need for balance sheet adjustment is greater, and a stronger recovery in the rest

The aggregate credit data mask the important processes of fund reallocation between sectors and agents that have occurred in recent years. In particular, the breakdown of bank lending by activity shows that the contraction of loans to firms since the start of the crisis has been most marked in sectors in greatest need of balance sheet restructuring, like those linked to the real estate market, which built up a higher volume of debt during the upturn (see upper left-hand panel of Chart 5.2). Thus, between the end of 2008 and the end of 2014 (the latest available data) the outstanding amount of credit in construction and real estate services contracted by 50.1%,[4] while the decline in other sectors over the same period was 26.1%. The latest information shows that the rates of decline continue to be most marked in the sectors linked to the real estate market, and moreover they have heightened in recent quarters, with the year-on-year declines standing at the end of 2014 at 12.6%, as against 9.9% in 2013 Q3. Meanwhile, in the other sectors the falls have tended to moderate and are substantially smaller. Specifically, between September 2013 and December 2014 the annual rate of contraction of credit to industry fell from 12.5% to 2.1%, and that to non-real estate services fell from 6.9% to 3.5%.

The micro data reveal a high degree of heterogeneity in the evolution of corporate credit

The data of the Banco de España's Central Credit Register (CCR) enable the evolution of credit to be explored at a higher level of disaggregation, since they contain information on individual loans of more than €6,000 at the borrower level, for individuals and legal persons. The analysis of these data for the sample of non-financial corporations shows a high degree of heterogeneity in the recent evolution of bank lending to firms. Specifically, the aggregate contraction in credit to this sector is seen to be compatible with the existence of a significant proportion of companies whose stock of bank financing is not declining (see upper right-hand panel of Chart 5.2). This percentage declined progressively from the start of the crisis until 2012, when it reached 34%. Subsequently this indicator has tended to rise, in parallel with the economic recovery, and in 2014 it stood at 40%. The weight of the gross value added generated by these companies also increased in 2014, to 40.5%,[5] having declined in previous years. This pattern of gradual recovery is seen in most sectors, even those in which credit contracted most strongly, such as construction and real estate. This would seem to indicate that the intra-sectoral heterogeneity of the evolution of credit is even more marked than the inter-sectoral heterogeneity.

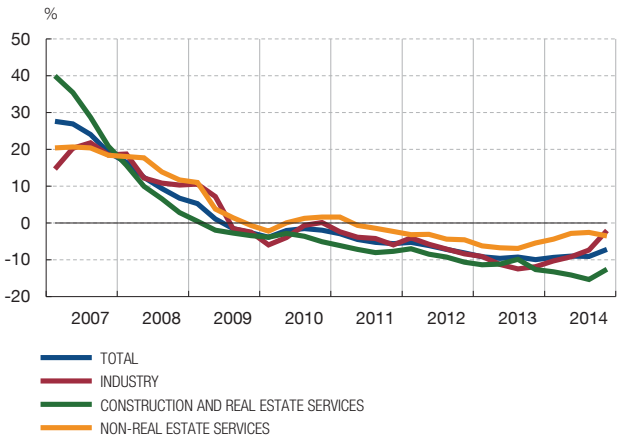
4 In this case, owing to a lack of information, the flow for calculating the rates is approximated as the difference between stocks, having been corrected for the effect of the transfer of loans to Sareb.

5 Of this 40.5%, the bulk (39.7%) corresponds to firms whose credit increased.

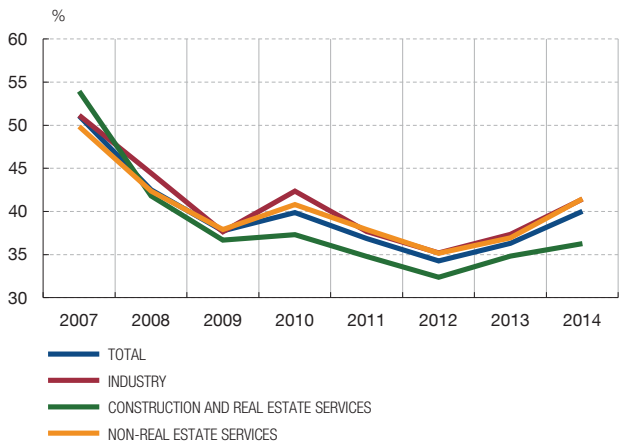
REALLOCATION OF LENDING BETWEEN SECTORS AND FIRMS

CHART 5.2

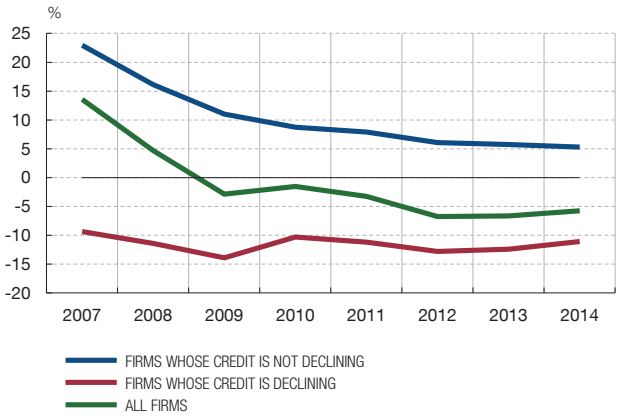
CREDIT TO PRODUCTIVE ACTIVITIES (a)



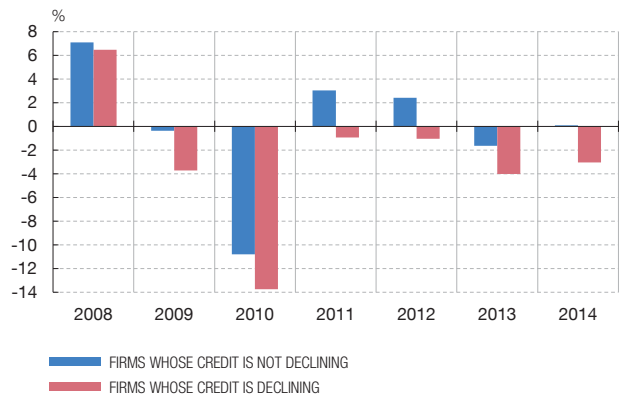
PERCENTAGE OF FIRMS WHOSE CREDIT IS NOT DECLINING



FLOW OF FINANCING AS A PERCENTAGE OF GDP



YEAR-ON-YEAR GROWTH RATE OF SALES IN T-1 (b)



TOTAL FACTOR PRODUCTIVITY IN T-1 (c)

MEDIAN DEBT BURDEN IN T-1 (c) (d)

SOURCE: Banco de España.

a Excluding credit to financial services.
b Calculations based on matched CCR and CBSO data. Weighted average of the growth rates of sales at the sector level. The weights are assigned in accordance with the gross value added of each industry.
c Calculations based on matched CCR and CBSO data. Total factor productivity measures the relationship between the productive factors used and the output obtained, and approximates the firm's level of efficiency. The chart shows the evolution of median productivity, calculated as the weighted average of the sectoral medians, the weights being assigned according to the gross value added of each industry. The resulting value is standardised on the basis of the value of the median productivity of the firms whose credit is declining in 2008.
d Ratio defined as financial expenses/(gross operating profit + financial income).

Matching CCR data with the information of the accounts of firms obtained from the integrated database of the Banco de España's Central Balance Sheet Data Office (CBI) enables the characteristics of the companies in which the stock of bank lending is not declining to be compared with those of companies in which it is. This exercise shows that the former are characterised by having, on average, a stronger economic and financial position (their profitability is higher and their debt and debt burden are lower), by operating in more dynamic sectors, by showing higher growth in activity (proxied by turnover) and by being more productive. In addition, the differences between these two groups seem to have widened in recent years (see lower panels of Chart 5.2).[6]

Credit is being reallocated towards the most productive firms and those in a more favourable position to implement spending decisions

Thus, these results show that the aggregate contraction in credit to non-financial corporations is proving compatible with a healthy reallocation of credit towards companies in a more favourable position to implement spending decisions. This process would have tended to accelerate, moreover, since 2013, in parallel with the economic recovery. The greater availability of funds to firms with a more robust financial position would have served to finance the current spending of this type of company, while the balance sheet restructuring of those in a less favourable financial position would have permitted progress with the adjustment necessary for these to be in a position to implement spending decisions in future or to free up resources for more productive activities (in the case of non-viable firms). Likewise, the shift of financial resources towards more productive companies would be contributing to the increase in efficiency of the sector as a whole and the economy's potential growth.

Despite this increase in the proportion of corporations whose volume of credit increased or remained unchanged in 2014, the aggregate net flows channelled by these firms were slightly smaller than in 2013. However, this decline is basically explained by developments in large one-off transactions; in fact, the median increase in the credit of corporations in this group was higher than in 2013, and the distribution of such increases shifted towards higher values.

The proportion of individuals whose credit financing increased also rose

In the case of households, the CCR information also shows that the proportion of individuals whose level of debt was unchanged or increased in 2014 rose, for the first time since the start of the crisis. This development was accompanied, moreover, by an increase in the net flow of financing to such individuals, to 3.2% of GDP, up 0.5 pp from a year earlier (see Chart 5.3). The breakdown by borrower shows that this rise occurred both for individuals with business activity (0.5% of GDP, up 0.1 pp from 2013) and for those others who are in paid employment or inactive (2.7% of GDP, up 0.4 pp from the previous year).

In the case of households, unlike that of firms, it is not possible to match the CCR information with micro databases on their socio-economic characteristics, so the particular characteristics of the group whose debt increased cannot be identified. In any case, this evidence seems to confirm what is suggested by the information based on the aggregate amount of new credit transactions with this sector, namely that the greater availability of funds since 2014 would have enabled households to finance a higher volume of spending.

3 The main determinants of recent credit developments

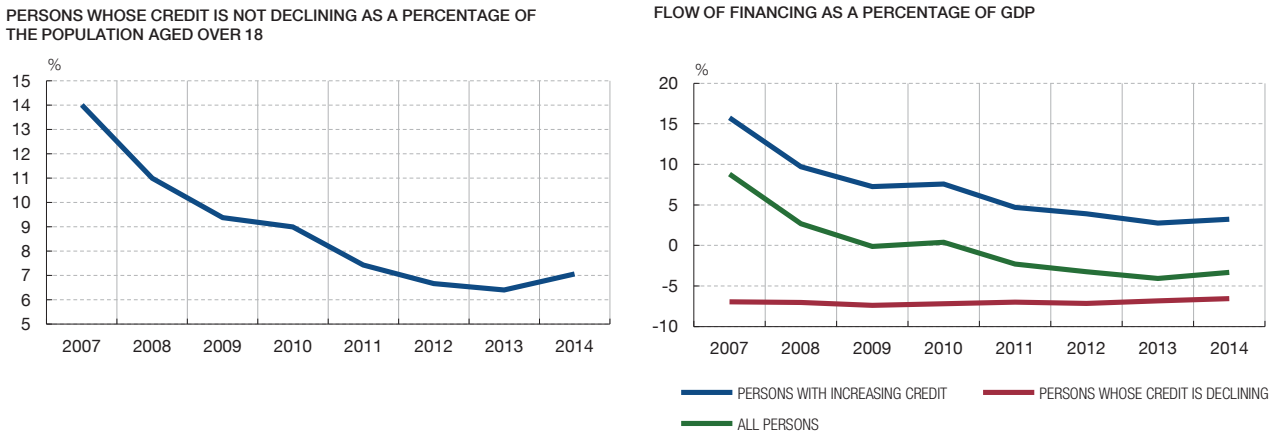
The recovery in credit flows is explained by various factors, such as the adjustments to the balance sheets of borrowers …

Various interrelated factors, whose specific relative importance is difficult to identify, have contributed to the recent recovery in credit flows to the private sector. First, there are those relating to the adjustments made during the crisis to the balance sheets of both borrowers and lenders. In the first case, the recovery, since mid-2013, in the net wealth of households

6 For further details, see C. Martínez, Á. Menéndez and M. Mulino (2014), "A disaggregated analysis of recent developments in lending to corporations", *Economic Bulletin,* June, Banco de España.

REALLOCATION OF CREDIT WITHIN THE HOUSEHOLD SECTOR

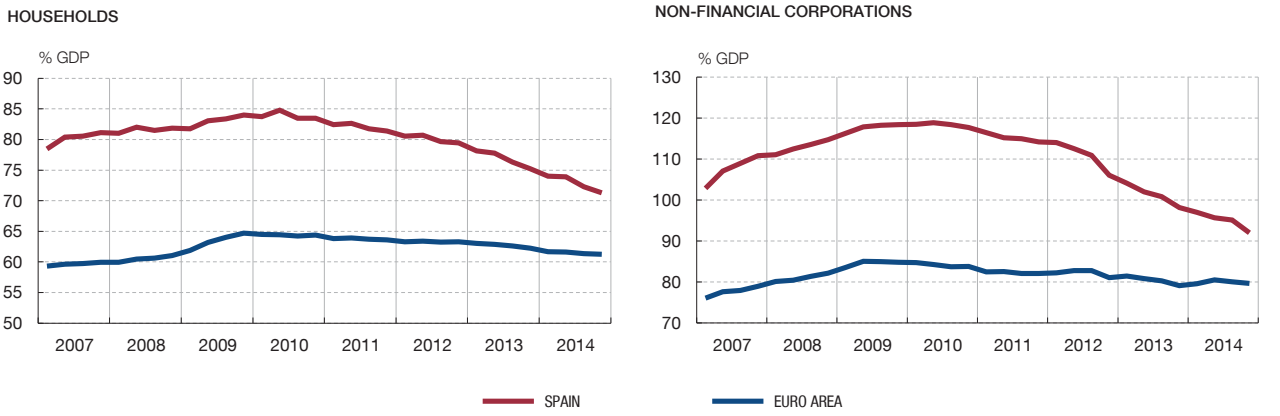
CHART 5.3



SOURCES: INE and Banco de España.

DEBT RATIOS

CHART 5.4



SOURCE: Banco de España.

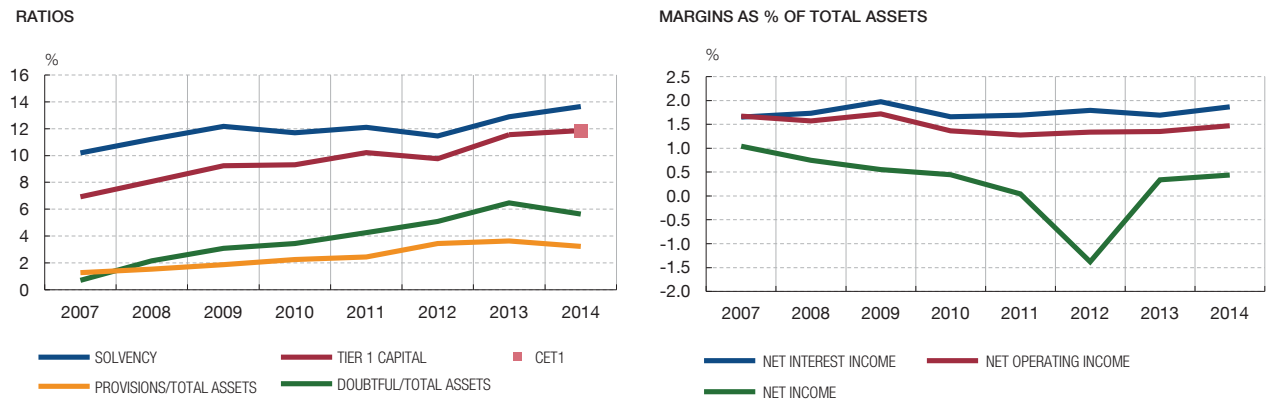
and the fall in the debt and debt service ratios of households and firms have resulted in an improvement in their financial position, which increases their capacity to assume new debts. Specifically, as seen in Chart 5.4, from its peak in 2010 Q2 to end-2014 (the latest available data), the household debt ratio fell by 13.5 pp of GDP. Over the same period, the fall in the corporate debt ratio was even greater (27 pp). This correction is explained basically by the accumulation of negative net financing flows and, in the case of firms, valuation adjustments and write-offs have also played an important role. The gap between these ratios and the average euro area ones has been almost halved.

… the adjustments in the balance sheets of lenders …

In the case of lenders, the conclusion of the clean-up, recapitalisation and restructuring of the financial system has contributed to an increase in the capacity of this sector to finance the economy.[7] At the end of 2014 (latest available data, which correspond to the new prudential standards, known as Basel III), the common equity tier 1 (CET 1) of Spanish credit institutions amounted to 11.8% of their total risk-weighted assets, practically the

7 See Section 3.3 of Chapter 1 of the Banco de España's *Annual Report, 2013* on this process.

CREDIT INSTITUTIONS. FINANCIAL POSITION INDICATORS. CONSOLIDATED DATA CHART 5.5



SOURCE: Banco de España.

same figure as for Tier 1 capital and 1.8% lower than total capital (see Chart 5.5). The aggregate ratios stood clearly above the regulatory minimum requirements, both if one takes into account the transitory adjustments that facilitate their gradual application and, to a lesser extent, if their full application in 2019 is considered.[8] The quality of the balance sheet improved, also on account of the restructuring and provisions made and the transfer of certain assets to Sareb, and in this way it contributed (along with the economic recovery) to a reduction in the doubtful loans ratios. The weight of doubtful assets in the total balance sheet of Spanish credit institutions fell from 6.5% in December 2013 to 5.6% twelve months later. Also, the lower loan loss provisions contributed to the increase in net profit in 2013 and 2014, which stood at 0.44% of total assets last year.

The results for Spanish banks of the ECB's AQR and stress test confirmed the quality of the valuations of their assets and their comfortable solvency situation. Thus, even in the extreme unfavourable macroeconomic scenario considered, all who participated in the exercise (representing more than 90% of the total assets of the sector) would have sufficient capital to cover the losses that may be generated.[9] All this has contributed to the substantial improvement in the financing conditions of Spanish credit institutions on the markets, which would have begun to be passed on with greater clarity to the conditions on which they supply funding.

The evidence available suggests that the process of restructuring the financial system has, in the short term, had a certain effect on the supply of credit, since it has not been possible for other credit institutions to replace the whole of the decline in funds provided by those institutions subject to restructuring plans.[10] These frictions would have been more evident in the case of SMEs, since it is more difficult to assess the credit quality of these companies and, consequently, their bank relationships play an important role. However, these effects

8 The total capital requirement, under Pillar 1 of Basel III, is currently 8% of risk weighted assets (6%, for Tier 1 capital, and 4.5% for common equity tier 1). These values will be increased gradually from 2016 to 2019, with the application of the capital conservation buffer (2.5%) and other possible buffers, such as the one applicable to systemic institutions, the countercyclical one and other systemic buffers. In addition, certain deductions of intangible assets are also gradually applied over the transitional period from 2015 to 2019. For further details, see the November 2014 edition of the Banco de España's *Financial Stability Report.*

9 One Spanish bank had net capital needs, which would have been more than covered by the actions taken in 2014.

10 For further details, see J. Martínez (2014), "Impact of restructuring plans on lending to non-financial corporations", *Economic Bulletin,* July, Banco de España.

have tended to become less significant as the restructuring process has advanced, as shown by the fact that, according to the information available in the CCR, there is currently no appreciable difference between institutions intervened by the FROB and others as regards their percentage rates of acceptance of firms' new requests for credit.

… the regulatory changes for loans to SMEs …

At the same time, the Spanish authorities have been taking a number of measures to facilitate the flow of financing to SMEs, including notably measures that have resulted in a lower consumption of capital for credit institutions in relation to their loans to such firms. Specifically, two measures were adopted in this respect in September 2013.[11] First, Circular 4/2013 significantly widened the regulatory definition of an SME, bringing it into line with that predominating at the European level and so extending the benefit of the lower capital requirements generally associated with loans to such firms (both new and existing ones) to a larger set of companies. Second, the Law on support for entrepreneurs (Law 14/2013) brought forward by three months the introduction in Spain of the reduction factor (0.7619) for the capital requirements in respect of retail transactions with SMEs that is envisaged in the European capital requirements regulation and directive (CRR and CRD-IV). Following the introduction of these two changes, financing SMEs, a segment in which the frictions in the supply of credit were more evident, is more attractive for credit institutions.[12]

… the expansionary monetary policy and the progress made in correcting national imbalances and weaknesses detected in the functioning of the euro area …

The Eurosystem's conventional and unconventional expansionary monetary policy measures have also made an important contribution to stimulating credit flows through their impact on financing conditions. In addition to the cuts in official interest rates, measures were adopted to improve the transmission mechanisms linked to the problems of financial fragmentation that arose during the sovereign debt crisis which hindered the transmission of monetary stimuli to countries, like Spain, that had been more affected by the financial tensions (see Chapter 2 of this report). Also notable in this context are the actions taken, both at the national (specifically, structural reforms and fiscal consolidation) and European level (strengthening of euro area governance and, in particular, the progress made towards establishing the Banking Union), to correct the macroeconomic imbalances built up before the crisis and the weaknesses in the functioning of the euro area revealed by the crisis, which have also contributed to increasing reintegration of European financial markets since 2013. All this has contributed to a significant easing in financing conditions in Spain. Thus, as Chart 5.6 shows, since mid-2013 there has been a progressive decline in the cost of credit in Spain, which has been most evident in those segments in which it displayed most downward stickiness during the crisis, such as the financing of SMEs. Thus, the interest rate on loans of less than one million euro (which include transactions with SMEs) was reduced by 1.9 pp between April 2013 and March 2015 (the latest data available). For other types of loan, the falls over the same period ranged from 0.7 pp to 1 pp.

… the change in the cyclical position of the Spanish economy …

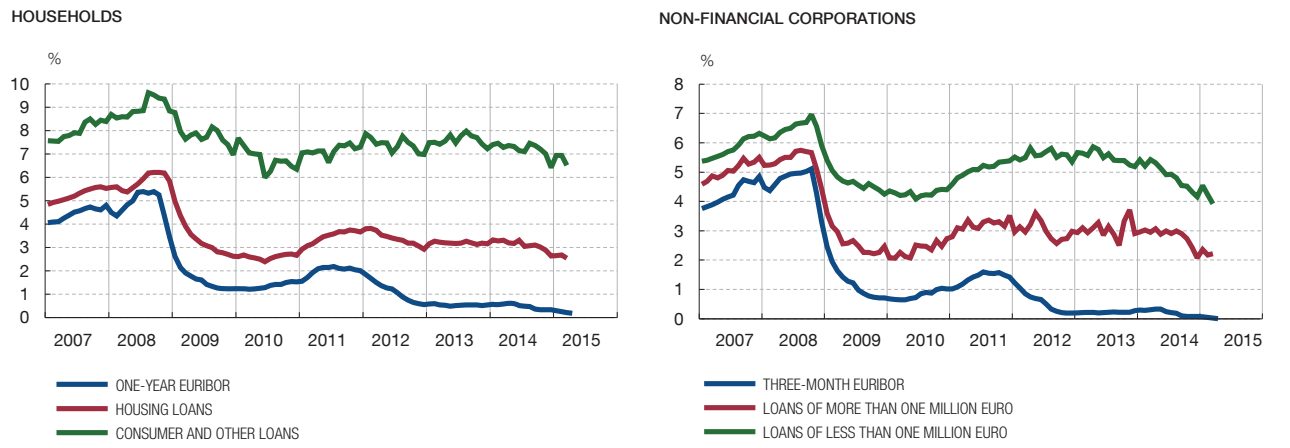
Credit flows have also been stimulated by the change in the cyclical position of the Spanish economy, which began in the second half of 2013. Firstly, because it has resulted in an increase in current and expected income, boosting the capacity of borrowers to pay their debts and reducing the risk perceived by lenders (see the left-hand panel of Chart 5.7). The improvement in the macroeconomic outlook and, in particular, the recovery in employment must have made a significant contribution to the reduction in uncertainty, as the rise in confidence indicators shows, favouring the expansion of spending by households and firms and their greater willingness to finance it out of future income through credit.

11 See Section 3.1 of the May 2014 issue of the Banco de España's *Financial Stability Report.*

12 For further details, see J. Ayuso (2013), "An analysis of the situation of lending in Spain", *Economic Bulletin,* October, Banco de España.

CREDIT INTEREST RATES

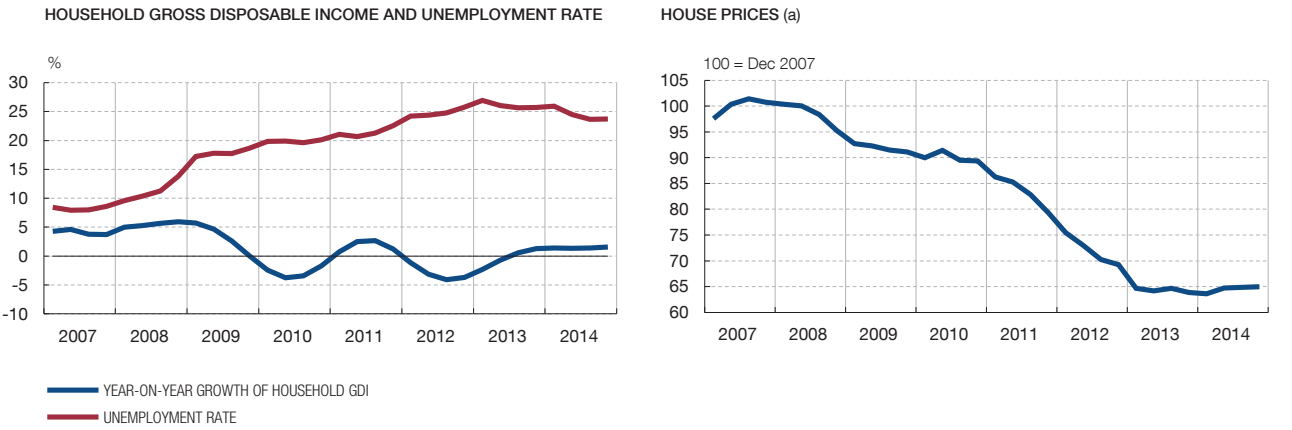
CHART 5.6



SOURCE: Banco de España.

MACROECONOMIC INDICATORS

CHART 5.7



SOURCE: INE.

… and the signs of stabilisation of house prices

The signs of stabilisation of house prices, following the significant adjustment recorded since the start of the crisis (44% in real terms, according to the INE's house price index), may also have had a positive effect on the supply and demand for credit through various channels (see the right-hand panel of Chart 5.7). On one hand, the more favourable outlook in the real estate market, along with the economic recovery, may have helped to stimulate residential investment, which is largely financed by credit. Thus, in 2014 this component of demand began to show some signs of recovery, after the sharp fall of previous years. On the other, it must be taken into account that these assets serve as collateral for loans, so that their value affects the amount of financing available. Finally, real estate wealth is the most important component of the value of household wealth, so that a more favourable evolution of house prices translates into a strengthening of the financial position of this sector, which has a positive impact on their solvency and, therefore, their chances of obtaining credit.

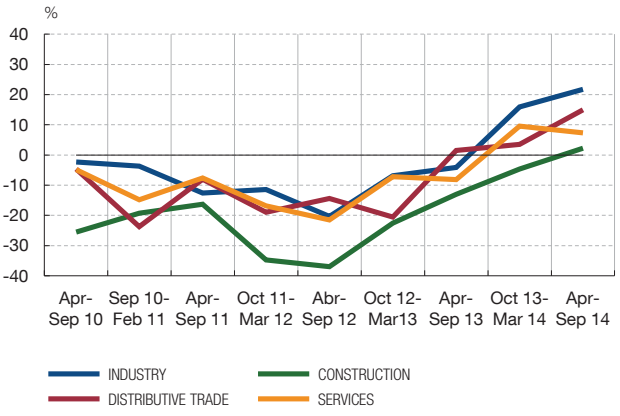
Different indicators confirm the rise in the supply and demand for credit

Different indicators (quantitative and qualitative) confirm that the greater buoyancy of activity in the credit market has been linked both to supply and demand factors. Thus, CCR data appear to show that the increase in the number of credit transactions with non-financial corporations has been both a consequence of the increase in loan applications

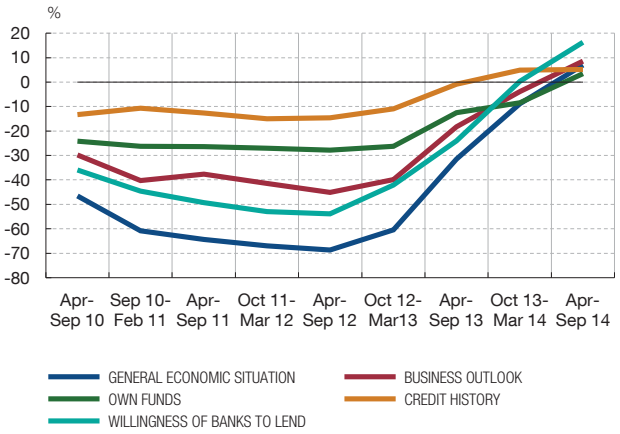
CREDIT SUPPLY AND DEMAND INDICATORS

CHART 5.8

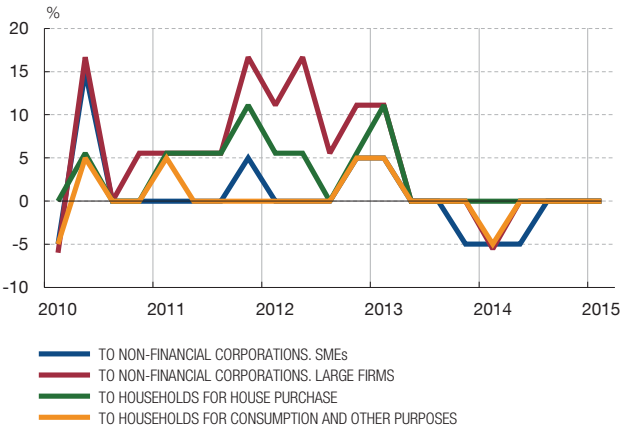
EVOLUTION OF AVAILABILITY OF BANK LOANS. SECTOR BREAKDOWN. SAFE (a)



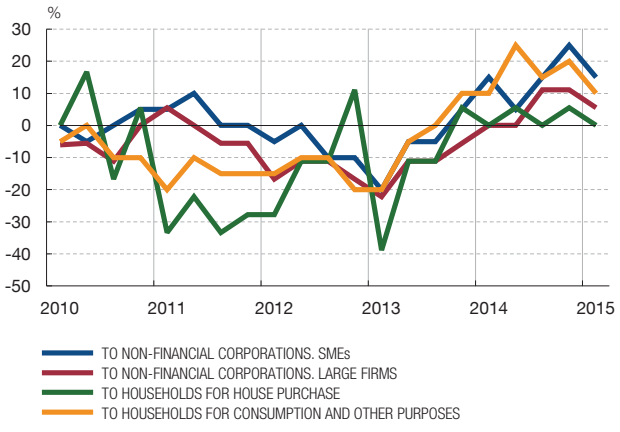
EVOLUTION OF FACTORS AFFECTING THE AVAILABILITY OF EXTERNAL FINANCING. SAFE (a)



CHANGE IN CREDIT STANDARDS FOR BANK LOANS. BLS (b) (c)



CHANGE IN THE DEMAND FOR BANK LOANS. BLS (b) (d)



SOURCES: European Central Bank and Banco de España.

a SAFE: Survey on the access to finance of firms in the euro area. Percentage of firms indicating an improvement less that of those indicating a deterioration.
b BLS: Bank Lending Survey.
c Changes in the diffusion index. A positive sign denotes a tightening of credit standards.
d Changes in the diffusion index. A positive sign denotes an increase in the demand for loans.

and of an increase in their approval rates (see Box 5.2). The rise in these rates is fairly widespread across sectors and has been larger in the case of newly formed firms. The estimates made on the basis of this information also suggest that the improvement in access to credit has been more marked for companies with a sounder financial position. This evidence is, moreover, consistent with the results of the survey on the access to finance of firms conducted by the ECB every six months on the basis of a sample of European companies, including around 1,300 from Spain. Thus, as seen in the upper left-hand panel of Chart 5.8, since the end of 2013 Spanish SMEs have reported a clear improvement in their perception of access to credit.[13] This has occurred against a background in which an increasing proportion of SMEs state that they have detected a

13 For further details of the recent results of this survey, see Á. Menéndez and M. Mulino (2015), "Evolución reciente del acceso de las pymes españolas a la financiación externa según la encuesta semestral del BCE", *Boletín Económico,* February, Banco de España

greater willingness on the part of credit institutions to grant financing and report a more favourable outlook for their business (see upper right-hand panel of Chart 5.8).

The Bank Lending Survey, conducted on a quarterly basis by the Eurosystem and addressed to a sample of euro area banks, including ten Spanish ones, also shows a clear easing of the credit standards applied by national institutions, although it is very slight and limited to certain segments, including, in particular, loans to SMEs and lending to households for consumption and other purposes[14] (see the lower left-hand panel of Chart 5.8). It should be noted, however, that surveys of banks of this type tend to underestimate increases in supply, especially when they occur gradually.[15] As seen in the lower right-hand panel of Chart 5.8, this survey also points to a clear recovery in the demand for loans from the end of 2013, which appears to have been more marked in the case of the demand from firms, and from households for credit for consumption and other purposes apart from house purchase.

4 The role of other sources of financing

The alternatives to bank credit have played an important role in the financing of firms' spending in recent years

In a highly bank-based economy like the Spanish one, bank credit provided by resident credit institutions is the main source of funding for non-financial corporations. However, firms also make use, albeit to a more limited extent, of alternative instruments, like capital increases, bond issuance or foreign loans. Finally, firms also finance part of their spending out of retained earnings. According to the financial accounts of the Spanish economy, the alternatives to funds provided by resident credit institutions have gained weight in recent years (see upper left-hand panel of Chart 5.9). Thus, for example, the (negative) net flow of total financing in 2014 amounted to -1.2% of GDP, while that corresponding to bank credit was -4.3% of GDP.

Among the liabilities other than loans supplied by national credit institutions, the behaviour in recent years of own funds has been notable. These increased on average by 3.1% of GDP per annum between 2009 and 2014, driven largely by retained earnings. The net amount of funds raised through bond issuance by non-financial firms and their resident financial subsidiaries[16] has been relatively less important, although the flow associated with this source has recently been positive in most years, and equivalent on average to 0.6% of GDP. Net funds obtained through foreign loans, which basically include both syndicated loans and funds provided by subsidiaries in the rest of the world (some of which are financed, in turn, by means of bond issues in international markets), have changed sign. In 2012, they had a negative value equivalent to 2.1% of GDP. During the next two years, the flow tended to recover, and last year the amount was positive (0.1% of GDP). Trade credit, a financial instrument that arises from the postponement of payment for purchases, is another source of financing for firms, although the bulk of these flows take place in the non-financial corporations sector itself, so that the amount of net funds raised through this channel at the aggregate level is low and tends to have a negative sign.[17]

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14 For further details of the results of this survey, see the quarterly articles published in the Banco de España's *Boletín Económico*.

15 See, for example, Lown et al. (2000), "Listening to loan officers: the impact of commercial credit standards on lending and output", *FRBNY Economic Policy Review,* July. The authors find, in the case of the equivalent US survey, a certain reticence on the part of banks to signal relaxation of their supply conditions, especially in the initial years of the survey. A factor that may contribute to this is the greater difficulty identifying, from one quarter to another, changes in conditions that occur smoothly and gradually, as compared with situations of tightening of supply, which tend to occur in periods of crisis and more abruptly.

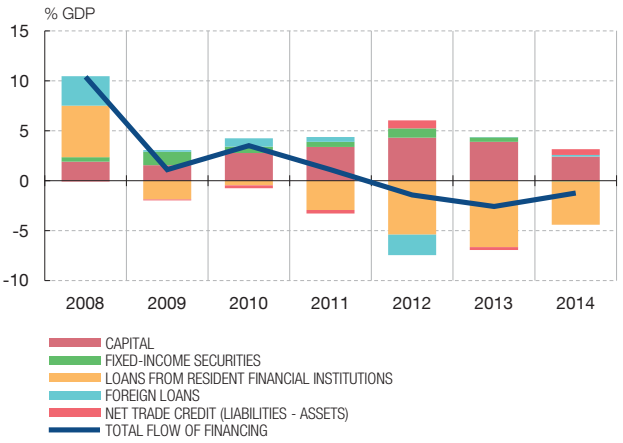
16 A significant part of the financing raised by Spanish non-financial corporations on bond markets comes from issues made through resident and non-resident financial subsidiaries.

17 The negative sign of the net flow associated with trade credit in the corporate sector means that, overall, non-financial corporations grant financing to other sectors (households, general government and the rest of the world). For further details of recent developments in trade credit, see V. García-Vaquero and M. Mulino Ríos (2015), "Recent behaviour of the trade credit of non-financial firms in Spain", *Economic Bulletin,* January, Banco de España.

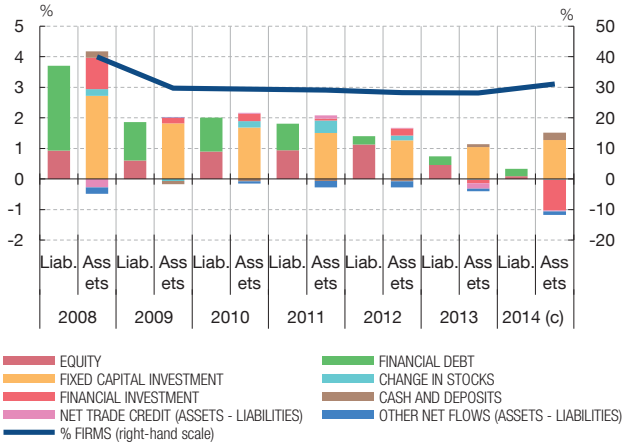
FINANCING OF NON-FINANCIAL CORPORATIONS

CHART 5.9

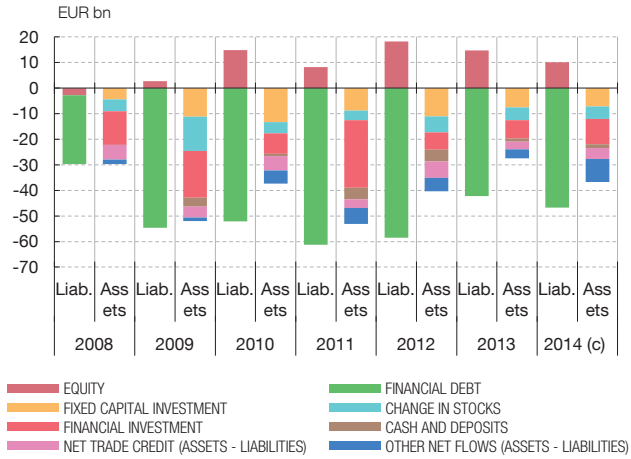
FINANCING FLOWS OF NON-FINANCIAL CORPORATIONS. FASE (a)



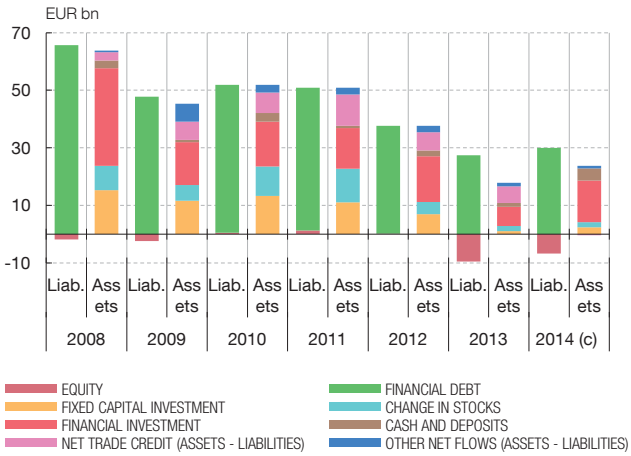
FLOWS OF FIRMS WITH NET POSITIVE INVESTMENT. CBI (b) (c) (d)



FLOWS OF FIRMS WHOSE TOTAL DEBT IS DECLINING. CBI (b) (c) (e)



FLOWS OF FIRMS WHOSE TOTAL DEBT IS NOT DECLINING. CBI (b) (c) (e)



SOURCE: Banco de España.

a Financial Accounts of the Spanish Economy.
b Until 2013, the data are obtained from the integrated database of the Banco de España's Central Balance Sheet Data Office (CBI).
c Cumulative four-quarter data for 2014 (CBQ), linked to the 2013 data.
d Excluding holding companies. Flows as a percentage of the «total assets» of the previous year.
e Excluding holding companies and firms without debt.

The more disaggregated information from the CBI enables the role played in the funding of non-financial corporations' spending in recent years by alternative sources to bank credit to be examined in greater depth. In particular, these data reveal that the rise in own funds, especially in the case of larger companies, has helped to increase company investment in recent years through two channels. First, companies that have raised their stock of capital financed part of the increase in their balance sheet by means of an increase in own funds (see upper right-hand panel of Chart 5.9). Second, these same instruments served to finance part of the debt repayments undertaken by companies conducting deleveraging processes, thereby moderating the negative impact of such processes on their spending on tangible assets (see lower left-hand panel of Chart 5.9). Also, trade credit may have played a similar function in recent years. Specifically, as seen in the lower right-hand panel of Chart 5.9, firms with greater capacity to borrow would have used part of the funds raised through debt to grant financing to companies that needed to adjust their balance sheets, thereby helping to smooth the contractionary effect of deleveraging on investment.

In short, both the aggregate and disaggregated information available suggests that the alternative sources of financing to credit provided by resident credit institutions have in recent times played an important role in financing the spending of the corporate sector.

In the case of households, the alternative financial instruments to credit play a marginal role in the financing of spending

In the case of households, bank credit is practically the only financing instrument available. This sector – in particular the self-employed – also finances a small portion of its purchases through trade credit, but the importance of the latter is marginal. Between 2009 and 2014, households raised through this channel, an average net flow equivalent to 0.1% of GDP.

5 Conclusions

The outstanding amount of credit will have to continue to decline until the private sector has completed the deleveraging necessary to sustain economic growth in the medium and long term

Deleveraging still being undertaken by a significant part of the private sector continues to be reflected in a decline in the aggregate stock of bank financing, although the rate of decline is slowing. In the short term deleveraging limits the capacity of private demand to expand, but the balance sheet adjustment is necessary to stimulate economic growth in the medium and long term, since it either increases the capacity of agents to implement future spending decisions, or else it frees up resources for other more productive activities.

But aggregate deleveraging is proving compatible with a recovery in credit flows and a reallocation of credit towards more productive agents, which is helping to support the growth of private demand

However, aggregate deleveraging is proving to be compatible with more buoyant activity on credit markets. This recovery is explained by a number of factors of various kinds, such as the adjustments made to the balance sheets of lenders and borrowers in recent years, the change in the cyclical position of the Spanish economy and the Eurosystem's expansionary monetary policy. The microeconomic evidence shows, moreover, that new credit tends to go to more productive agents, which are in a more favourable position to undertake spending decisions. Thus, the recovery of credit flows is one of the factors supporting the growth of private demand that has been seen since the end of 2013.

Alternatives to credit have been playing an important role in the financing of corporate spending

At the same time, the available evidence suggests that alternatives to bank credit have in recent years played an important role in the financing of corporate spending. Among them, own funds (significantly underpinned by retained earnings) are notable for their greater relative importance. By contrast, the recourse to other instruments, such as bond issuance, has been of residual importance for the corporate sector as a whole, since this option is only available to larger companies.

In the short term the recovery of credit flows is expected to continue, but its intensity will depend on several factors

In the short term, the pattern of recovering credit flows can be expected to remain in place, although the aggregate stock of credit will continue to contract for several quarters, in line with the experience of other historical episodes of deleveraging in the wake of financial crises. The buoyancy of credit will be determined by a number of factors. First, it will depend on the future outlook for income and employment, as these impact both the supply and demand for funds. In the segment of lending to households the recovery of the flows will be especially linked to the increase in youth employment, since, for life cycle reasons, the demand for financing is concentrated among households with a younger family head, especially in the case of loans for purchase of a principal residence, which make up the bulk of the liabilities of this sector.[18] Second, the adaptation of credit institutions to the new regulatory requirements that have been introduced at the international level in response to the crisis may have some impact in the short and medium

18 According to the 2011 Spanish Survey of Household Finances, 61% of households that own the dwelling in which they reside acquired it when the head of household was under 30 years of age.

term on their supply of funds.[19] However, in the long term these changes will reinforce the resilience of the financial system to adverse shocks and will result in greater macroeconomic and financial stability.

In the more medium term, credit growth may be influenced by demographic factors

In the more medium term, demographic factors can be expected to tend to reduce the demand for household financing. Specifically, the fall in population in the youngest segments will foreseeably result in a reduction in the number of potential loan applicants, especially in the segment of financing for house purchase, since, as already mentioned, households' demand for funds is concentrated among those with a young head.

Alternatives to bank credit will continue to play an important role in financing

The alternatives to bank credit can be expected to continue to play an important role in the short term in the financing of corporate spending. In the more medium term, insofar as progress is made with the European Commission's Capital Markets Union initiative, which pursues greater development of capital markets in Europe, the relative importance of instruments such as bonds in the financing of the real economy may increase. Companies would then have more diversified liabilities, and would be less vulnerable to potential frictions in one particular financing channel. In the case of smaller firms, for which direct access to markets is not feasible due to problems of scale, the development of the securitisation markets seems to be a more promising alternative, since the task of analysing credit quality in these transactions continues to fall to credit institutions, which have a comparative advantage in performing this job, given their greater knowledge of such companies. In a subsequent phase, which does take place through the capital markets, these institutions, by securitising the loans, transmit part of the risk to third parties.

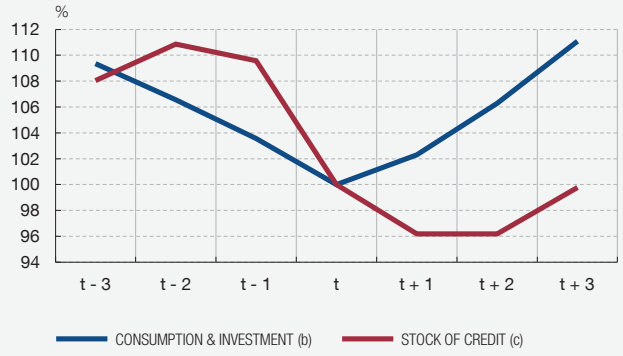
19 The new regulation entails stricter capital requirements, the implementation of which has already begun and will be completed in 2019. In addition, new leverage ratio and liquidity requirements are planned to come into force in 2018, except for the liquidity coverage ratio which will be brought into force progressively from October 2015 (see J.P. Ibáñez and B. Domingo, "La transposición de Basilea III a la legislación europea", in *Revista de Estabilidad Financiera,* No 25, of the Banco de España). Mention should also be made of the additional requirements for global systemically important institutions currently under discussion (requirement for a minimum total loss absorption capacity (TLAC)) and possible structural measures to separate market risks from commercial banking risks.

Creditless recoveries are generally defined as periods when GDP grows in real terms after a recession and the aggregate stock of credit to the private sector contracts. The literature on these episodes, which originated with the seminal work by Calvo *et al.* (2006),[1] shows that they are not rare, since they affect between 20% and 25% of all economic recoveries [Abiad *et al.* (2011),[2] Sugawara and Zalduendo (2013),[3] Bijsterbosch and Dahlhaus (2011)[4]] and, although they are more frequent in emerging economies, they also occur in developed ones [Claessens *et al.* (2009),[5] Coricelli and Roland (2011)[6]]. Examples of creditless recoveries in developed countries include those that followed the Great Depression of the 1930s in the United States or the Nordic banking crises of the early 1990s.

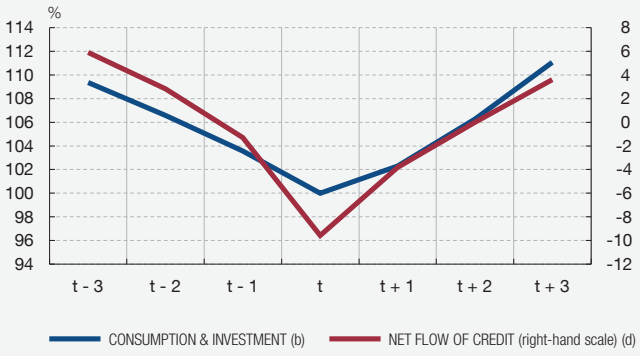
The works cited identified certain factors that significantly increase the probability of a creditless recovery. These include, in particular,

1 G. Calvo, A. Izquierdo and E. Talvi (2006), "Sudden Stops and Phoenix Miracles in Emerging Markets", *American Economic Review Papers and Proceedings*, vol. 96, No. 2, pp. 405-410.
2 A. Abiad, G. Dell'Ariccia and B. Li (2011), *Creditless Recoveries,* IMF Working Paper WP/11/58.
3 N. Sugawara and J. Zalduendo (2013), *Creditless Recoveries. Neither a Rare nor an Insurmountable Challenge,* World Bank Policy Research Working Paper No. 6459.
4 M. Bijsterbosch and T. Dahlhaus (2011), *Determinants of Creditless Recoveries,* ECB Working Paper Series No. 1358.
5 S. Claessens, M. A. Kose and M. E. Terrones (2009), "A recovery without credit: possible, but…", VoxEU.org, 22 May 2009.
6 F. Coricelli and I. Roland (2011), *How do Credit Conditions Shape Economic Recoveries?* CEPR Discussion Paper Series No. 8325.

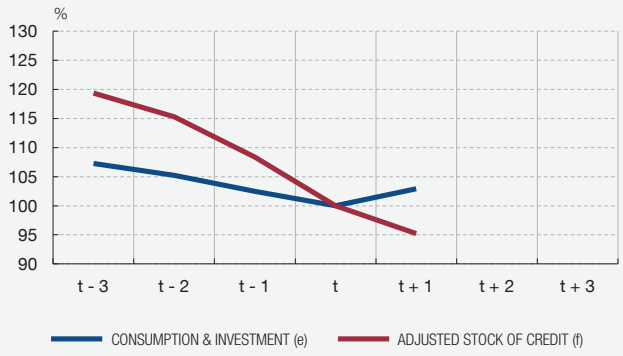
1 DOMESTIC DEMAND AND STOCK OF CREDIT. AVERAGE OF BANKING CRISES (a)



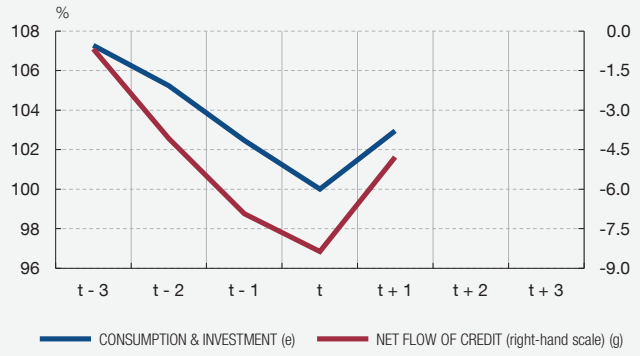
2 DOMESTIC DEMAND AND NET FLOW OF CREDIT. AVERAGE OF BANKING CRISES (a)



3 DOMESTIC DEMAND AND ADJUSTED STOCK OF CREDIT. SPAIN 2010-14



4 DOMESTIC DEMAND AND NET FLOW OF CREDIT. SPAIN 2010-14



SOURCE: Banco de España.

a The data correspond to Finland (1990-96), Japan (1990-96), Norway (1988-94), Spain (1981-87) and Sweden (1990-96). Source: M. Biggs, T. Mayer and A. Pick (2010), *Credit and Economic Recovery: Demystifying Phoenix Miracles,* mimeo.
b Arithmetical mean of the volume indices of private consumption and investment of Finland, Japan, Norway, Spain and Sweden, with base 100 at the minimum point of the series.
c Arithmetical mean of the stock of credit of Finland, Japan, Norway, Spain and Sweden, with base 100 at the minimum point of their corresponding consumption and investment series.
d Annual change in the stock of credit index of Panel 1.
e Sum of the volume indices of private consumption and investment, with base 100 at the minimum point of the series.
f Base 100 at the minimum point of the consumption and investment series. The series includes the securitisation vehicles and loans transferred to Sareb and is adjusted for changes not linked to financial flows, such as valuation effects and loan write-offs.
g Annual change in the stock of credit index of Panel 3.

that the recovery follows a recession that was accompanied by a banking crisis and was preceded by a major credit surge.[7] Separately, these two factors also raise the probability significantly, along with other factors such as high private sector debt, a housing market slump or an exchange rate crisis. In addition, economies that are highly reliant on flows of foreign capital are more susceptible to creditless recoveries. Lastly, expansionary tax policies increase the incidence of these episodes, while expansionary monetary policies reduce it.

There are several factors that set creditless recoveries apart. One such factor is significantly lower GDP growth,[8] especially in the first two years [Sugawara and Zalduendo (2013)]. As a result, and since creditless recoveries are usually preceded by deeper recessions, it takes longer to return to potential output levels. The growth breakdown is also different. In turn, domestic demand grows at a slower pace, although no differences are observed in the contribution of foreign demand relative to with-credit recoveries. The most dynamic component of domestic demand is generally consumption, while investment — especially non-residential investment — takes longer to recover. On the supply side, the contributions of capital and productivity are much lower than in with-credit recoveries, while there is no difference in employment. In the breakdown by sector, growth is lower in sectors that are more reliant on external financing [Abiad *et al.* (2011), IMF (2009)[9]] and higher in sectors that are reliant on trade credit rather than bank credit [Coricelli and Roland (2011)]. This finding, together with the observation that creditless recoveries are much more frequent after banking crises, leads Coricelli and Roland (2011) to argue that these episodes are, at least partially, a consequence of deterioration in the supply of bank credit. Accordingly, they argue, policies designed to restore efficient financial intermediation should generate higher growth. The IMF (2009) and Kannan (2010)[10] also suggest that credit supply constraints may have a significant impact on the strength of recoveries.

Various explanations for creditless recoveries have been proposed in the literature. Calvo *et al.* (2006) argue that using the economic slack that has built up during a crisis may boost output with no need for higher investment and, therefore, for credit. According to the IMF (2009) and Darvas (2013),[11] higher foreign demand and depreciation of the real exchange rate are both factors that can play a prominent role in creditless recoveries, allowing export companies to fund their business growth out of higher sales revenues. Claessens *et al.* (2009) and Coricelli and Roland (2011) suggest that in creditless recoveries sources of funding other than bank loans (trade credit, bonds, internal financing) may be used to fund private sector spending. These same authors indicate that a reallocation of credit to less credit-intensive and more productive sectors can generate economic growth even in a setting of private-sector deleveraging on the back of productivity gains.

In turn, Biggs *et al.* (2010)[12] highlight that in economic recoveries, changes in the flow of credit play a more important role than growth in the stock of credit, because the former are a better proxy of new credit, which is that used to fund consumption and investment growth. Specifically, the authors show that an increase in the net flow of credit (which may even be negative) alone is sufficient to trigger domestic demand growth. They illustrate this argument by analysing the main creditless recoveries that followed banking crises in developed countries in the 1980s and 1990s (see Panels 1 and 2). Thus, although the stock of credit continued to decline in the two years after private domestic demand touched bottom, the net flow of credit – albeit still negative – began to recover as domestic demand increased. This is observed in the present cycle in Spain, although the cumulative contraction in credit has been more marked than in the average of the episodes depicted in Panels 1 and 2 (see Panels 3 and 4). Thus, in 2014, when domestic demand first started to recover, the stock of credit held by households and firms continued to decline, but the net flow of credit rose. If the regularity observed in past banking crises is repeated in this case, the stock of private sector credit would not start to increase in Spain until end-2015.

7 Probability of 80%, according to Abiad *et al.* (2011).

8 According to Abiad *et al.* (2011), a third lower than in with-credit recoveries.

9 IMF (2009), World Economic Outlook, April, Chapter 3.

10 P. Kannan (2010), *Credit Conditions and Recoveries for Recessions Associated with Financial Crises,* IMF Working Paper WP/10/83.

11 Z. Darvas (2013), *Can Europe recover without credit?* Bruegel Policy Contribution, February 2013.

12 M. Biggs, T. Mayer and A. Pick (2010), *Credit and Economic Recovery: Demystifying Phoenix Miracles,* mimeo.

The information contained in the Banco de España's Central Credit Register (CCR) database permits a disaggregated analysis of recent changes in the supply of and demand for credit, and in access to credit, by non-financial corporations. The CCR compiles monthly individual information on the credit balances and credit situation of loans over €6,000 provided by all the credit institutions operating in Spain. The database also contains the requests for information that the institutions file with the CCR to ascertain the debt position of firms that apply to them for funding and with which they have no exposure (they receive this information automatically on firms with which they already have exposure). Using these information requests it is possible to identify a subgroup of firms that are seeking bank funding (only firms applying for loans to banks with which they do not already have loans). Moreover, by observing how their credit balances evolve, it is also possible to know if those firms actually obtain the funding.[1] Therefore, the number of requests may be used as a proxy variable for demand for credit, while the proportion of firms that obtain funding is a measure of access to credit which depends both on the lending standards applied by institutions and the credit quality of the firms applying for funding. Panels 1 to 4 depict both indicators, together with the number and volume of bank loans granted proxied by the growth in firms' credit balances.

As Panel 1 shows, the onset of the crisis in 2008 was accompanied by a severe contraction in demand for credit by Spanish firms which lasted through to early 2013. However, by sector, the demand performance was not uniform either in terms of timing or intensity. Thus, while demand in construction and real estate services fell sharply between 2008 and end-2010, demand in all other sectors was virtually unchanged. Subsequently, loan applications gradually declined across the board, so that by end-2013 the number of firms seeking funding was 60% and 16% below the pre-crisis levels in the real estate and other sectors, respectively. At the same time, the proportion of firms that applied for and obtained funding (with institutions with which they had no exposure) dropped markedly in 2008-09 and then fell more gradually thereafter, touching bottom in April 2013 at 36%, almost 20 pp below the early 2008 level (see Panel 2). This was most likely the result of the tightening of credit supply conditions and of the institutions' perception of deterioration of credit quality of the applicants. The drop in credit demand and in the proportion of successful loan applications resulted in a sharp decline in the volume of new lending (see Panels 3 and 4). Both these factors played a more important role in the real estate sector, triggering a more pronounced decline both in the proportion of corporations obtaining funding and in the volume of new lending.

From early 2013, the improved economic situation and macroeconomic outlook prompted a reversal in these patterns. Thus, the demand for credit by firms tended to recover, driven exclusively by non-real-estate firms, and the proportion of firms obtaining the requested funding tended to increase, in general, growing by some three percentage points from the 2013 low to approximately 40% in October 2014. In the real estate-related sector, the number of credit applications remained stable in the period, although a larger number of these applications for bank funding were successful. Lastly it should be noted that despite the improved access to credit and the growth in demand, the volume of new lending has barely risen, indicating that for the subgroup of firms analysed here more loans are being granted but for lower average amounts than in the past.

In order to ascertain the extent to which the recent recovery observed in the proportion of firms obtaining funding reflects a genuine improvement in access to credit or changes in the characteristics of the corporations concerned, the probability of a firm being granted a loan has been modelled as a function of a series of firm-specific variables and a set of fixed effects[2] and also permitting time-varying coefficients by sub-period (see Table 5). In particular three sub-periods are considered: the expansionary phase (2003-07), the crisis (2008-12) and the recovery (2013-14). In general, the estimated coefficients of the variables have the expected sign and are statistically significant. Thus, as the table shows, the debt ratio, the interest burden and the fact that a firm has an NPL balance with a bank in the month previous to the loan application all have a negative effect on the probability of it obtaining funding from a bank with which it has no previous lending ties. Also according to the estimates, and counter-intuitively, the asset volume of a firm has an adverse effect on the probability of it obtaining a loan, which may be linked to a possible bias in the sample of firms used in the estimations.[3] Analysis of the findings by sub-period shows that after the crisis the probability of obtaining a loan became more sensitive to changes in financial determinants of firms, which suggests that institutions would be discriminating between firms to a greater extent than in the expansionary phase.

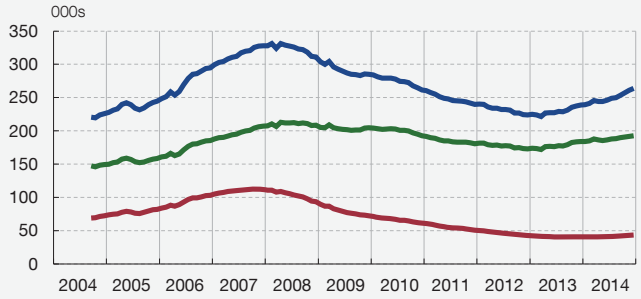
Lastly, Panel 6 shows the different probabilities of obtaining a loan by type of corporation: 1) the median firm, which proxies a typical firm; 2) firms with a sounder financial position; 3) firms with a

1 More specifically, a firm is considered to have obtained funding when its credit balance (including both the amount drawable and the amount drawn) increases between t-1 and t+3 with banks with which it had no exposure.

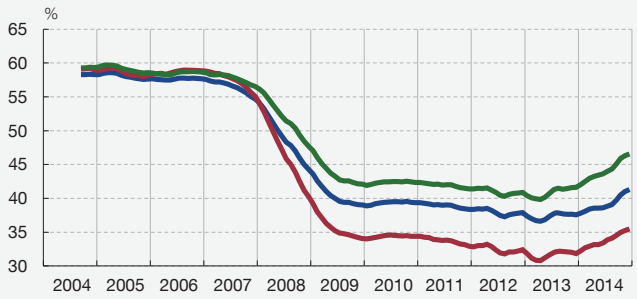
2 The estimates derive from a linear probability model that includes as explanatory variables asset size, a binary variable that indicates whether the firm has an NPL balance, the logarithm of 1 plus the age in years of the firm, the debt ratio and the interest burden ratio. It also includes fixed firm effects, fixed year effects and fixed time effects combined with an age binary variable. The estimates were made for the subgroup of firms in the CCR for which there is information at the Central Balance Sheet Data Office (CBSO). The data cover the period 2003-14.

3 In particular, the CCR only identifies firms that apply for funding to institutions with which they have no exposure. One possible explanation for this result could be that the larger firms applying for loans from institutions with which they have no exposure are precisely those whose usual banks have refused to grant them funding in view of their perceived poor credit quality.

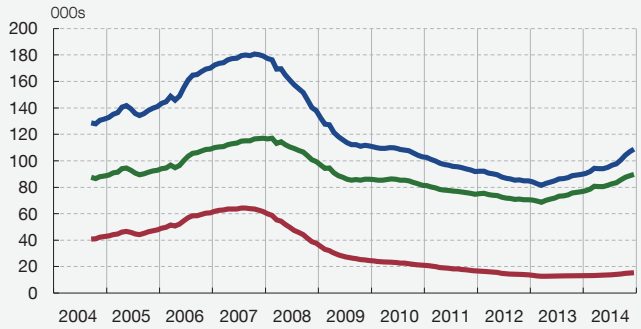
1 NUMBER OF LOAN APPLICATIONS



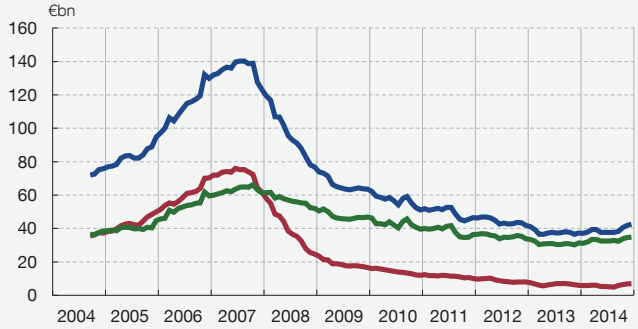
2 PERCENTAGE OF FIRMS THAT OBTAIN A LOAN



3 NUMBER OF LOANS GRANTED



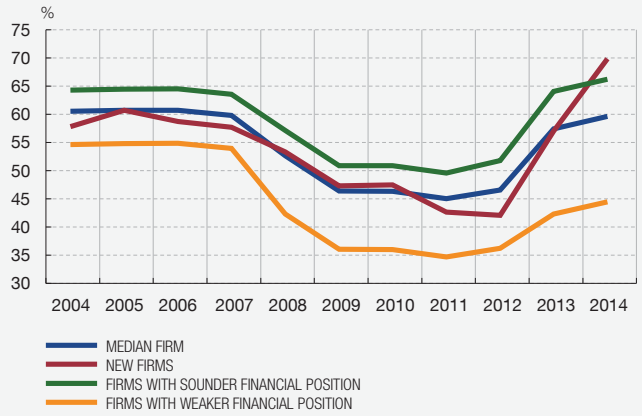
4 VOLUME OF LOANS GRANTED



5 MARGINAL IMPACT ON PROBABILITY OF LOANS BEING OBTAINED (a) (b) (c)

	2003-2007	2008-2012	2013-2014
NPL	-0.111*	-0.133*	-0.132*
Debt	-0.053*	-0.073*	-0.073*
Interest burden	-0.002*	-0.005*	-0.005*
Assets	-0.062*	-0.052*	-0.046*
Age	-0.002	0.014	0.009

6 ESTIMATED PROBABILITY OF LOANS BEING OBTAINED (d)



SOURCE: Banco de España.

a Results based on a linear probability model estimated using data from the period 2003-14 for the subgroup of firms in the CCR for which there is information at the CBSO. The coefficients represent the marginal effects of each of the variables one period lagged on the probability of loans being obtained.

b The total assets variable is the logarithm of total assets of the firm. The NPL variable is a binary variable that takes the value of 1 if the firm has an NPL balance with any bank in the previous period, and a value of 0 otherwise. The age variable is the logarithm of 1 plus the age in years. The debt ratio is calculated as total debt minus the most liquid assets minus loans granted over total assets. The interest burden is calculated as interest over gross operating profit plus financial income.

c (*) Indicates coefficient significance at 1% confidence level.

d Probability for four types of corporations: 1) median firm (for which the median value of all the variables is taken); 2) firms with a sounder financial position (for which the value of the 10th percentile of the interest burden and of the debt ratio is taken); 3) firms with a weaker financial position (for which the value of the 90th percentile of the distribution of the interest burden and of the debt ratio is taken): and 4) new firms (those that are two years old or less).

weaker financial position;[4] and 4) new firms.[5] The results show that the deterioration in access to credit was similar for new and established firms in the period 2007-10, whereas in 2011-12 the tightening continued for new firms but remained unchanged for established ones. Since then access to credit has improved, especially for new firms, returning even to pre-crisis levels, although this finding should be viewed with caution as the coefficient associated with this effect cannot be measured precisely. In turn, in terms of financial position, the panel shows how the probability of obtaining a loan during the crisis declined more severely for firms with higher debt and a higher interest burden and how, since 2012, that probability is recovering at a slower pace than for firms with a better financial position. Thus for this last group, in accordance with the results of the estimates, by 2014 the probability of obtaining a loan had returned to pre-crisis levels, whereas in the case of firms with a weaker financial position it was still very much below those levels. In any event, all these results must be viewed with caution as they are based on estimates.

4 To calculate the probability of firms with a weaker and a sounder financial position obtaining a loan, the value of the 90th and 10th percentiles, respectively, of the interest burden and the debt ratio are taken and the median for the other variables.

5 New firms are considered to be those that are two years old or less. The median value of the other variables is taken to calculate the probability.