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Abstract

Using new sectoral data on Spanish capital stock, real investment and credit we check for the presence of bank preferences for lending to particular branches of the economy. We show that these subsectors share specific characteristics in the levels and components of their cost of use of capital. We find a "preferred habitat" for banks in three sectors: Housing, Real Estate and Construction. Also, commercial banks appear to be more sensitive towards credit demand by nonfinancial firms than savings banks. The latter ones concentrate their lending into the three sectors mentioned above.

Key words: Real investments, bank credit, mismatch
JEL: G21

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Over the last fifteen years -a period comprising more than a complete business cycle- Spain has experienced a very strong process of capital accumulation. Both, the construction and service sectors have concentrated an important share of such a process of intensive real investment. In fact, the construction sector (public works, infrastructures, office buildings, residential housing) has turned out one of the main engines of an aggregate growth 0.8 annual points higher than the EU15 average.

Housing prices have grown also quite rapidly for the last five years, reflecting not only the market response to an increasing need of lodging services but, mainly, a much higher demand for real assets in the portfolios of Spanish (and non Spanish) families. Lower mortgage rates and better loan conditions, higher expectations of housing price acceleration above general inflation, generous tax incentives, the euro effects (black money, and the absence of exchange risk), an accommodating monetary policy and a recent weak performance of the stock market, make up all together, a cocktail that has stimulated the construction sectors very substantially.[1]

To these expansionary effects we must add the role of the banking sector, already heavily oriented since the beginning of the period towards mortgage lending. In fact, we find that banks have intensified their presence in the construction sectors very significantly. In this paper we explore why depository institutions concentrate so much of their lending activity in the following three branches: *Construction* (narrowly defined), *Real Estate* and *Housing*. Apparently, all of these branches deal mainly with quite similar real capital assets that share many of the features desired by banks.

In absence of regulation and information asymmetries banks would allocate loans to different investment projects according to their expected risk and return, basically in the same way as non-financial firms would decide by themselves. As a result, the share of total investment of each sector in the economy should resemble that of the bank credit assigned to it.

If sectors in the economy are treated differently by banks, it could be due to reasons arising from both sides of the loan market. Thus, SMEs are traditional customers of banks because financial markets are not an effective alternative source due to cost, scale and informational reasons. Consequently, on the demand side, there is a preference for SMEs to borrow from banks.

In this paper, we concentrate on the supply side effects to check whether banks treat all sectors equally or if, alternatively, they show any preferences. Several reasons may lye behind this *preferred habitat* hypothesis. They deal with the difficulty that banks face in valuing expected risk and return of firm investment projects in new, risky or unstable sectors. Contrarily, bank historical specialization in lending to traditional sectors has reached great economies of scale (static and dynamic) and has built, in this process, relational capital with their customers.

New data on investment and capital stock for the Spanish economy[2] provide us with the opportunity to check if banks (commercial and savings institutions) show a tendency to lend to firms that carry out their investments in specific sectors of the economy. This propensity to *overlend* to some sectors would mean to discriminate against others, providing them less credit than what it would correspond them according to their real investment expenditure. This paper explores if and why banks would treat differently borrowing firms according to the characteristics of their sector of origin.

Although no sign of a down turn is yet present in the Spanish housing market, the implication for the banking sector of finding lending asymmetries are quite important. First we might face some inefficiency in the banking sector with respect to their role of allocating loanable funds to investment projects. Secondly, the Spanish banking system might be concentrating too much of its risk in three branches of the economy and, consequently, be overexposed to the eventual burst of a housing price bubble.

The article is divided into 4 sections. Section 1 describes the optimal behaviour of banks and non bank firms and points out some equilibrium conditions to be tested. Section 2 describes the origins of the new data, the methodology of calculation and the data of the variables that we use in section 3 to test the empirical model. Section 4 concludes.

1. Investment equilibrium conditions and testing hypotheses

For the last decades firm real investment and bank lending decisions have been analyzed using the net value approach. Only if the net present value of expected returns is positive will the firm (or the bank) decide to carry out (finance) an

investment project. However, regarding the same project (like a real investment in plant or equipment) a different decision may be taken by real investors and bank managers according to their subjective perception on the benefits, costs and risks incurred.

In very simple terms, investment (I_t) can be considered an increasing function of the annual expected net return (Π^e_t) derived from using an additional unit of capital. Considering the depreciation rate (d_t) and the opportunity cost represented by the real interest rate (r_t), and assuming an infinite sequence of constant expected net returns we get the following expression:

$$I_t = I\left(\frac{\Pi_t^e}{r_t + d_t}\right) \qquad (1)$$

where the denominator is the user cost of capital, equivalent to the cost of renting capital (plant or equipment) equal to the real interest rate plus the depreciation rate.

For our purposes, it is relevant to note that the user cost may be different if the rate of increase of asset (capital) prices (ν_t) is different from the general inflation rate (π_t). If the former is higher, then there is a capital gain equal to the difference of inflation rates (ν_t-π_t) per unit of capital. This capital gain reduces the user cost of capital for real investors since it lowers the opportunity cost of investment. On the contrary, if the inflation rate exceeds the rate of increase of the asset price then the user cost is increased by the capital loss, the difference (π_t -ν_t) per unit of capital. Replacing the more general definition of user cost in equation (1) we obtain:

$$I_t = I\left(\frac{\Pi_t^e}{r_t + d_t - (\upsilon_t - \pi_t)}\right) \qquad (2)$$

Non financial firms invest according to their net expected returns, which in turn depend upon the perceived gains in productivity, efficiency, new sales etc. Similarly, firms must evaluate future scenarios for existing interest rates, expected technological lives, capital price inflation rates and residual values.

Banks` valuation of such variables may differ in many cases because they don't have any control over the productive process of the firm. Furthermore, the final

success of an investment project depends greatly on the capability and behaviour of managers. The theory of the banking firm has explored this point from many perspectives[3]. Asymmetry of information among lenders and borrowers has been one of the outstanding hypothesis. In this context, risk sharing problems are very relevant, and they are affected by firm reputation (Diamond, 1991); customer relationships (Sharpe, 1990; Rajan, 1992); incentives to pay back the loans (Bolton y Scharfstein, 1990); the existence of incomplete contracts and renegotiation provisions (Gorton y Kahn, 1993); and finally the role of collateral (Myerson, 1979).

These lines of research point out three possible ways in which firm and bank decisions may differ with each other. first discrepancy may arise from holding different views on the productivity impact of investments due to uncertainty and asymmetric information. Secondly, the bank may fear the consequences of an uneven sharing of risks derived from the presence of moral hazard problems. In this case, the reputation of the firm and the duration of the bank-firm customer relationship are critical. Finally, also in relation with risk, the level of guaranties and collateral assets pledged to ensure repayments clearly condition risk taking actions by borrowers. More specifically, weak levels of collateral would reduce incentives for cautious behaviour by the firm.

With respect to equation (2) above, the first two effects would exercise an influence on the variable Π^e_t, reducing the expected cash flow by banks on the loan. The third channel of influence would involve the variable ν_t. Banks would find more difficult to benefit from the reductions in user costs brought about by asset appreciation if the loans are not collateralised.

Consequently, the eagerness of firms and banks to carry out and finance respectively investment projects may be different and can be influenced by, i) the informational flows and the nature of the customer relationship (Boot, 2000); ii) the characteristics of the assets being invested and their capacity to serve as collateral (Boot, Thakor & Udell, 1991; Jiménez & Saurina, 2004). Furthermore, it is possible that firms may show a preference for capital as a financial source and address themselves directly to capital markets (Faulkender & Petersen, 2003).

We argue that total bank loan distribution by sector would resemble that of real investment, unless there were preferences on either side of the credit market that would not allow it. Bankers could be reluctant to lend to firms in some sectors that are new and risky or run projects difficult or very expensive to evaluate.

Contrarily, banks could show a preference for lending to sectors like Real Estate, Construction and Housing for the following reasons: i) the stability of the collateral value; ii) their good direct knowledge of the business, and iii) the presence of large economies of scale in mortgage lending activities.

On the other hand, non financial firms in new, risky or unstable sectors may prefer to finance their investments using alternative sources like non distributed profits or new (risk) capital and reduce, in this way, financial costs and the risk of bankruptcy. Excessive collateral requirements or higher interest rates asked by banks, to compensate for the high perceived risk of their projects, may induce firms to look somewhere else and keep bank loans only for "standard" operations.

In principle, banks should provide loan funds to sectors according to their investment activity, so that the industry share on investment should be the first determinant of loan assignment. Hence, real investment should be one of the main explanatory variables of loan demand by firms and households.

According to the theory of investment, behind real investment demand functions lye exogenous variables like the user cost of capital or some index of expected future activity (income). This implies that loan demand could depend also upon the usual components of the cost of use of capital, like the nominal interest rates (here assumed to be the same for all individuals, firms and sectors), the depreciation rates and the expected price increases of the assets being invested (both rates different by sectors). Part of the effect of these variables will be incorporated through the investment variable, but the regression analysis will determine if they also exercise a direct influence on loan demand.

We should expect a negative sign on the nominal interest rate, a usual indicator of the cost of borrowing for households and firms. Furthermore, a higher depreciation rate raises the cost of capital and reduces investment and loan demand. It could signal also a lower loan risk to banks through the shortening of the corresponding loan term and, hence, increase loan supply.

Asset price variation has a negative sign in the expression for the user cost of capital since the firm recovers part of the return of the investment in the form of a capital gain from the asset invested. Hence, we expect a positive sign in loan demand with respect to the expected asset price inflation. Also, on the supply side banks may find less risky to lend to capital projects whose asset prices increase rather than to those whose prices decrease, since they often take the capital value

of the assets as collateral for the loans. In fact this argument could explain banks` tendency to finance the purchase of real assets like land and housing, where used prices tend to be more stable and steady than those of markets for existing capital plant and equipment. For both reasons we would expect a positive effect of the expected inflation of asset prices on loan demand.

In this sense, we can mention an additional reason supporting banks' preference for the housing market. According to the theory of residential investment variables like wealth, income, housing prices, rents, the user cost of capital and its components (taxes, nominal interest rates and expected future housing prices) are considered relevant explanatory variables in estimating housing demand functions. It is interesting to note that households and banks share most of the information regarding the present and future expected values of such variables. Hence, banks can make a more precise analysis of the risk involved in mortgage lending than when firms carry out particular investment projects.

We want to focus our attention on the possibility that banks' preference for certain assets and sectors could be tied up to a different valuation of the variables that determine the level of investment. Banks and non financial firms would not face the projects in an identical manner.

We propose a regression analysis where the dependent variable is the share of credit on industry *i*, CR_{it}/CR_t. As independent variables we use the share of investment industry *i*, I_{it}/I_t, and its cost of use of capital cu_i .

$$\frac{CR_{it}}{CR_t} = \Phi \frac{I_{it}}{I_t \; cu_{it}} \tag{3}$$

If we use the definition of the cost of use of capital for the *i* sector,

$$cu_{it} \;=\; i_t + d_{it} - (\upsilon_{it} - \pi_t) \tag{4}$$

where i_t = nominal interest rate; d_{it} = asset *i* depreciation rate; v_{it}= asset *i* inflation rate; π_t = general inflation rate, we get

$$\frac{CR_{it}}{CR_t} = \Phi \left\{ \frac{I_{it}}{I_t}, i_t, d_{it}, (\upsilon_{it} - \pi_t) \right\} \tag{5}$$

2. Origin and description of the data

The new data series on real investment and capital stock for the Spanish economy have been developed by Ivie for the BBVA Foundation, using the new methodology recommended by OECD[4]. The data set contains annual data, starting in 1964, for 33 sectors of the economy. The capital variable is computed using the inventory approach, that is to say, by accumulating past real investment expenditures. This implies the use, for each asset, of specific retirement functions, technological obsolescence rates, depreciation rates, expected lives and expected rates of change of capital prices. It is interesting to note that our data bank offers sectoral investment data obtained by aggregation of the different assets involved. This procedure allows us to get, for each sector, a different user cost together with its components. In this way we are able to use both depreciation rates and capital gains or losses in asset prices by sector.

On the credit side, for the period 1992-2002, the Bank of Spain publishes annual data on total credit share by sector. These series do not provide any detail on the object of the credit or loan operation, basically if it is for circulating or fixed (plant and equipment) capital. The economy is divided into eighteen different branches of activity. So we have aggregated the capital stock series into the same number and definition of sectors. See graph 1.

A first look at the data shows for each sector the share of credit and investment at the beginning and end of the period. It is clear the high and increasing shares of the *Housing*, *Construction* and *Real Estate* branches both in credit and investment activities. Also, there is evidence of a certain degree of mismatch among the sectoral weights of investment and their corresponding bank loan assignments. We will come back with further comments on these data in section 3 below.

Regarding the behavior of banks, we show evidence on how the Spanish banking system channels increasing amounts of finance into three of a total of eighteen sectors, namely, the *Housing* (1), *Real Estate* (16) and *Construction* sectors (18). It is interesting to note that, in 2002, the three sectors taken together carried out 40% of the total investment in the economy and captured 60% of the bank loans. Their high joint weight in the Spanish economy (in output and employment) justifies a short description of what they contain. In this way we are able to see clearly the high level of interconnections that they have with the rest of the economy.

The *Housing* sector definition –not a real productive sector- includes all the new dwellings built and the repairs done during the period (investment) or accumulated in the past (capital stock). The *Real Estate* sector includes activities like urban and land development, the renting and leasing of residential and nonresidential buildings (like apartments, professional, manufacturing and industrial, shopping centers and retail stores, miniwarehouses and self storage units), the services provided by the offices of real estate agents and brokers, the management of residential and nonresidential property and other activities related to real estate. Finally, the *Construction* sector involves all kind of activities like general contracting, wrecking and demolition, excavation, painting, electrical contractors, plumbing & heating, glass, masonry, carpentry, etc. All these activities are involved in the development and conservation of infrastructures (highways and streets, railroads, airports, power and communication transmission line construction, water, sewer and pipeline construction, etc.) and also in manufacturing & industrial building construction or in commercial and institutional construction.

The first element to note, see graph 2, is the much faster growth of total bank credit than total investment over the period 1992-2002; an annual differential of approximately 7% that explains that, over the period, investment is multiplied by a factor of 2 and credit by one of 2.8. Similarly for the capital stock that grows at an annual rate 6.7 percentage points lower than that of total credit. According to this evidence bank credit is fuelling the accelerating process of capital accumulation.

The active role of the Spanish banking sector in financing investment and growth in the economy as a whole is even more vigorous if we look into two specific sectors. Graph 3 shows the much faster growth of *Housing* and *Real Estate* as compared to total loans in the economy. It also shows the slower growth of the Construction loans series. However, we include this sector because of the high attention that it gets from banks; in fact its loan/investment ratio is 3 to3.5 times larger than the average of the economy.

It is interesting to look at the way that bank loans are able to keep up with the potential demand for credit as represented by the evolution of real investment. Graph 4 shows, for each sector, the difference between the change in the credit share and the change in the investment share. A positive value means that outstanding bank loan assets increased more than investment. Housing is by far the sector that gets more funds for a given increase of investment, real estate is

third and the construction sector shows a negative value as was shown in graph 3 above.

An indicator of mismatch between effective investment and available credit by sector can be computed for the whole economy and for the three above mentioned sectors[5]. Graph 5 shows a decreasing tendency of the series for both indicators, so that there is an increasing correspondence among investment and credit shares. However, it is interesting to note the high relative weight of the mismatch indicator for the three specific sectors, exceeding their relative size in the total economy (graph 6). Only at the end of the period their contribution to the total mismatch coincides with their share of total credit.

According to the model of section 2, the explicative variables of sectoral investment are besides expected profits, the cost of use and its components. We ask ourselves if these last variables can explain part of banks' preferences for lending to these sectors. Our data bank allowed us to shed some light on this issue. Graph 7 shows how the user cost values of the three selected sectors are continuously lower than the average for the whole economy, being lowest in the housing sector and reaching 7 percentage points in the last few years. Depreciation rates together with expected asset inflation rates (graph 8) are responsible for this result.

We offer average annual rates of growth of sectoral asset prices for two distinct periods: 1965-2002 and 1992-2002. We do so because banks could form their expectations on asset inflation rates using the information over a longer period of time of that under analysis. The three construction related sectors (1, 16 & 18) show three of the highest asset inflation rates over the last eleven years and also for the entire 1965-2002 period. In this way banks can perceive the good behavior of the long run steady value of the collateral when lending to these branches of the economy.

To check further on the value risk involved in lending to the construction related sectors, we explore the time variance of the asset price inflation by sector over the 1992-2002 period. It could be an indicator of the value risk involved in those assets that are pledged to guarantee the loans. Graph 9 shows the results. The three sectors that we presume constitute the preferred habitat for Spanish banks show the lowest coefficient of variation and therefore the least uncertain price behaviour. These assets provide not only the best long run appreciation rate

but also the lowest fluctuations of prices and we claim that these elements are taken into consideration by Spanish banks.

3. Empirical results

We use a two-limit Tobit model to estimate the effects on the sector's loan share of its own investment share as well as those of the other potential explanatory variables[6]. Data are available for eighteen sectors and eleven years (1992-2002): a total of 121 observations. The following equations are estimated. Expected signs for the coefficients are indicated below.

$$\frac{CR_{it}}{CR_t} = \alpha 10 + \alpha 11 \frac{I_{it}}{I_t} + \alpha 12\, cu_{it} + \varepsilon_{it} \qquad (6)$$

$$\alpha 11 > 0;\ \alpha 12 < 0$$

$$\frac{CR_{it}}{CR_t} = \alpha 20 + \alpha 21 \frac{I_{it}}{I_t} + \alpha 22\, d_{it} + \alpha 23\, v_{it} + \varepsilon_{it} \qquad (7)$$

$$\alpha 21 > 0;\ \alpha 22 < 0;\ \alpha 23 > 0$$

The results appear in table 1. The first column shows statistically significant estimates for the parameters of the independent variables, investment ratio[7] and user costs, holding the expected sign. According to the estimated values, if a sector increases its investment participation by one percentage point it gains 0.72 points in its own loan share. Also, an increase of one percentage point in the user cost of investment in a given sector reduces its weight in total bank credit by 0.08 points.

When we drop the user cost variable as a regressor in the equation and use instead two of its components -the depreciation rate and the rate of growth of asset prices (column (2))- we find significant estimates for all coefficients with the expected sign. Thus, an increase in the depreciation rate of investment in one sector raises the user cost of capital and reduces the share of this sector in total credit. Similarly, an increase in the growth rate of asset prices raises the share of that sector in total credit.

To check whether there is some element, sector specific, that is not completely captured by the independent variables (related with size and cost) we ran a third regression including sectoral dummies[8]. Column (3) shows an important reduction in the effect of the investment ratio variable (from 0.71 to 0.31), without altering

the estimated parameter of the user cost variable. All sectoral dummies are statistically significant. If we rank sectoral dummies, the maximum values correspond to sectors 1 (*Housing*) and 18 (*Construction*), while the minimum values correspond to sectors 6 (*Chemical Industry*), 17 (*Other Services*) and 16 (*Real Estate*). Next, if we substitute the user cost by its components (column (4)), only the growth rate of asset prices keeps a significant positive effect on credit weights. Contrarily, the depreciation variable now appears with the right sign but it's not significant. Again, sectors 1 and 18 dominate the ranking with the highest values which show that banks discriminate (in a positive way) financially these two sectors.

To explore the possibility of finding a different pattern in the behavior of commercial and savings banks, we estimate equations 5 and 6, separately, for each type of credit institution (for cooperative banks we do not have information of the credit composition by sectors). Tables 2 and 3 show the results.

When we compare the results of Tables 2 and 3 we reach the following conclusions: a) the correlation between the sectoral composition of credit and investment is higher for savings than for commercial banks; b) in both types of banking firms, the user cost variable has a negative and significant effect, that is highest for savings banks; c) if we introduce sectoral dummies, the estimated parameter corresponding to the investment variable is again lower for both types of institutions. Interestingly, this parameter value is now lower for savings than for commercial banks, an indication that the former are less sensitive to the investment composition of the economy than the latter ones; d) the growth rate of asset prices is only statistically significant (and positive) for savings banks; and e) the fixed effect corresponding to sector 1, Housing, is much more important (2.5 times) for savings than for commercial banks. Therefore, savings banks show a higher tendency than commercial banks to discriminate positively in favor of mortgage loans.

In summary, the Spanish banking system apparently shows a preference to finance investment in certain branches of the economy that are related with the building activity like *Housing, Real Estate* and *Construction*. Savings banks seem to be even more inclined than commercial banks to channel loanable funds into these sectors.

4. Conclusions

New available data for Spain on capital stock, real investment and bank credit by sector, brought up the possibility of checking if banks' loan portfolio decisions showed any correspondence with the investment decisions made by non financial firms and investors.

Simple data analysis showed an important sectoral mismatch among the share of investment and that of credit for the whole economy. Some sectors get more finance from banks than it would be justified by their weight in total investment at the expense of other branches that look underfinanced. Several arguments are presented that can explain this asymmetry.

Empirical analysis confirms the presence of an important bias in bank lending favouring those sectors that are most related with the building activity: namely the *Housing, Real Estate* and *Construction* (narrowly defined) sectors. This *preferred habitat* of Spanish (commercial and savings) banks is strong and independent of the business cycle.

The evidence indicates that Spanish banks assign a different value to the user cost of capital and its components as determinants of the investment decision than real investors do. More specifically, when the user cost of a given sector rises banks invest significantly less than the real sector. In other words, when a sector invests heavily in capital assets that depreciate more and revaluate less –like those of the *Information and Communication Technology Sector ICT*- bank loans do not keep up with the investment of the real sector.

Two reasons might explain this different behaviour. First, the real sector can have more confidence than banks on the positive effect of investment on the marginal productivity of capital. In this case, when the cost of use for the given sector rises, banks decrease its share of total credit because they do not expect the same increase in marginal productivity as investors do. Secondly, an informational asymmetry among banks and real investors can cause a preference for banks to lend to sectors with a lower user cost of capital. Actually, a lower rate of depreciation and a higher expected price revaluation of investment capital would imply better chances (lower risk) for asset based bank lending.

These arguments could explain bank preferences for financing investments in sectors in which the real estate component of investment is high. Together with

relational capital reasoning, they can explain the financial difficulties of sectors investing in assets (machinery and equipment) with high rates of depreciation and deflationary prices like ICT. If this is the case, the structural change of Spain towards a more ICT intensive economy may not be getting enough financial attention from the banking system and be forced to rely much more on alternative sources of capital.

As for the different behaviour showed by commercial and savings banks we find that the former ones adapt better their loan portfolio to the effective investment needs of non financial firms and households. On the other hand it is the savings bank credit which appears to be more sensitive towards variables like the user cost of capital and its components; particularly the asset revalorisation rate.

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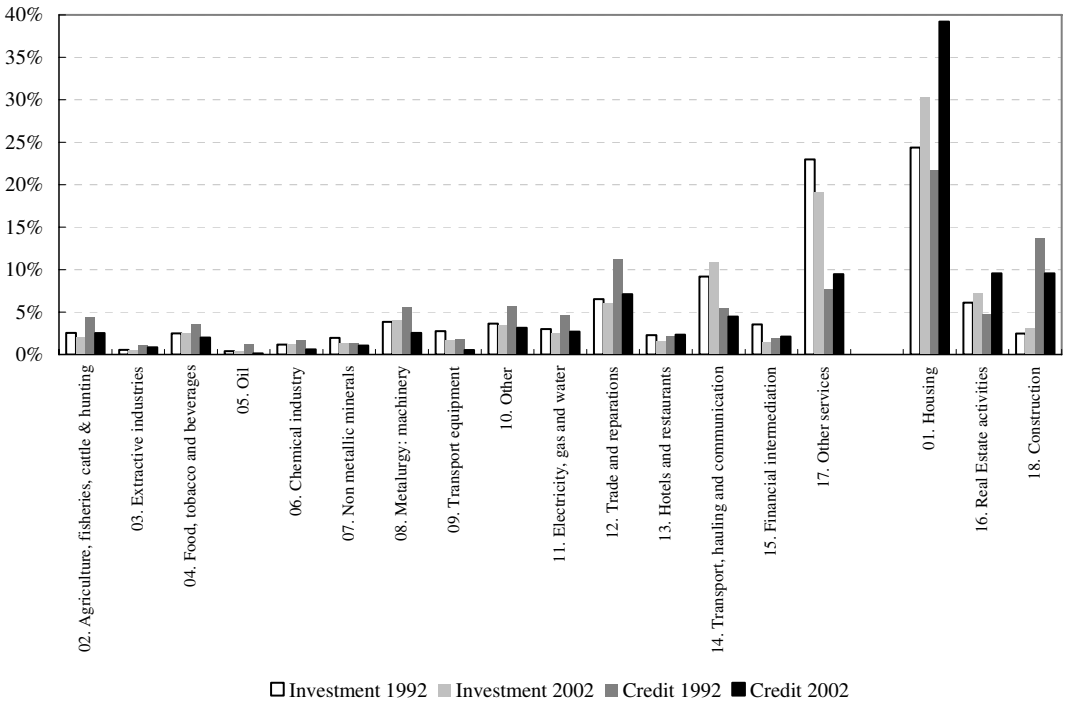
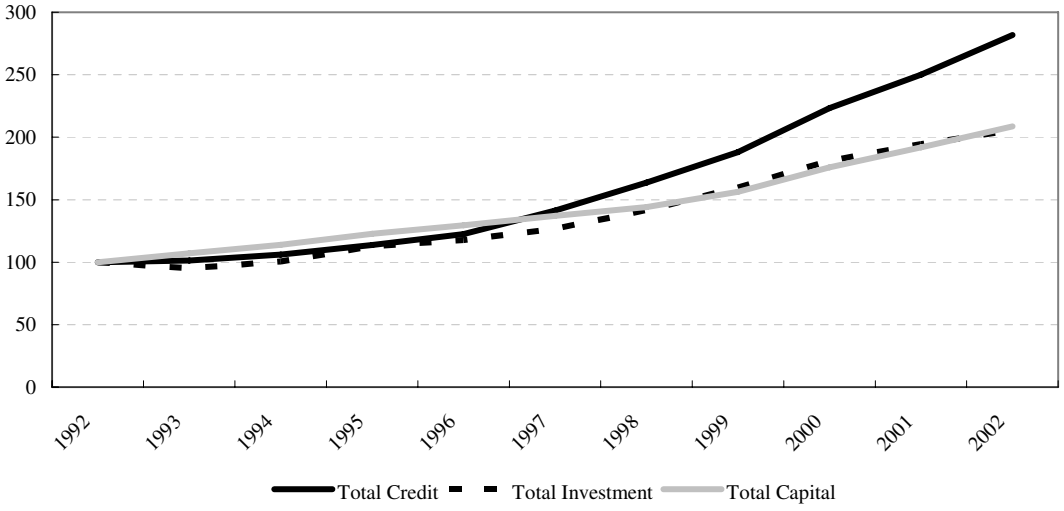
Graph 1. Share of total credit and investment by sector



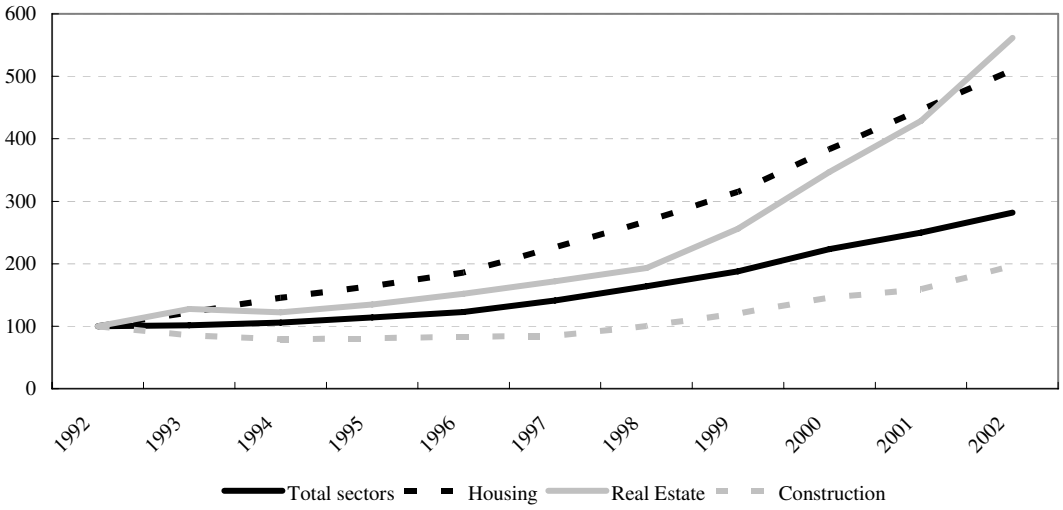
Source: FBBVA-Ivie for investment and Bank of Spain for credit data

Graph 2. Investment, capital stock and credit
1992=100



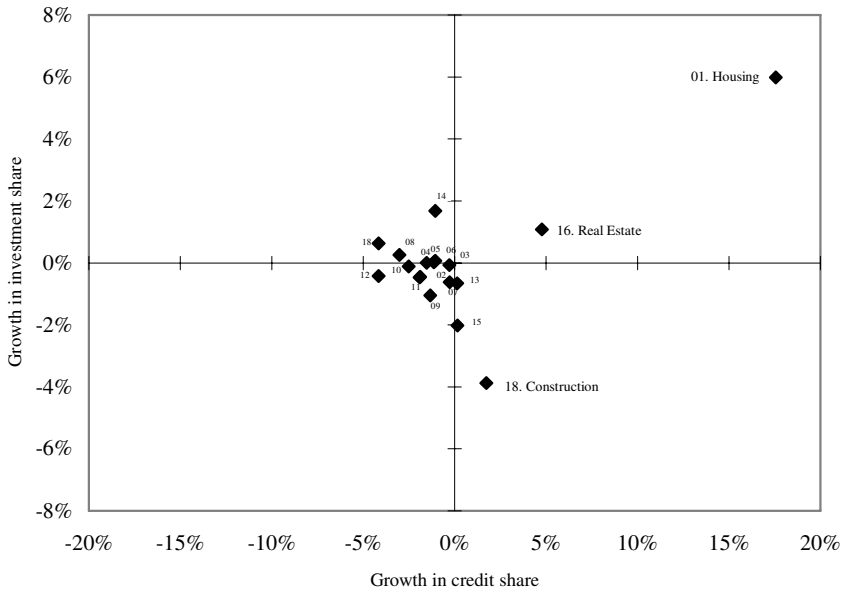
Source: FBBVA-Ivie for investment and Bank of Spain for credit data

Graph 3. Loans growth in housing, real estate, construction and total sectors
1992=100



Source: FBBVA-Ivie for investment and Bank of Spain for credit data

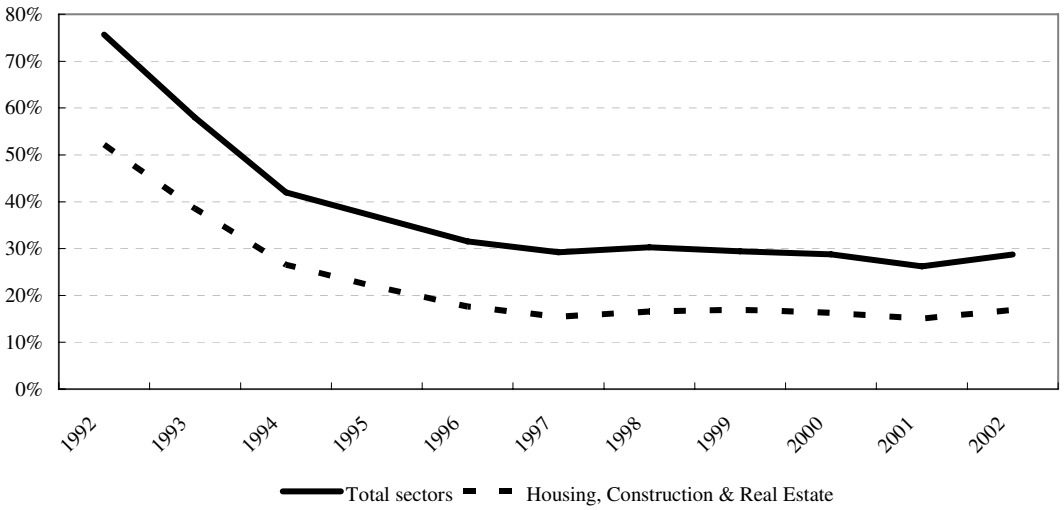
Graph 4. Growth in credit share vs growth in investment share: 1992-2002



01. Housing
02. Agriculture, fisheries, cattle & hunting
03. Extractive industries
04. Food, tobacco and beverages
05. Oil
06. Chemical industry
07. Non metallic minerals
08. Metalurgy: machinery
09. Transport equipment
10. Other
11. Electricity, gas and water
12. Trade and reparations
13. Hotels and restaurants
14. Transport, hauling and communication
15. Financial intermediation
16. Real Estate activities
17. Other services
18. Construction

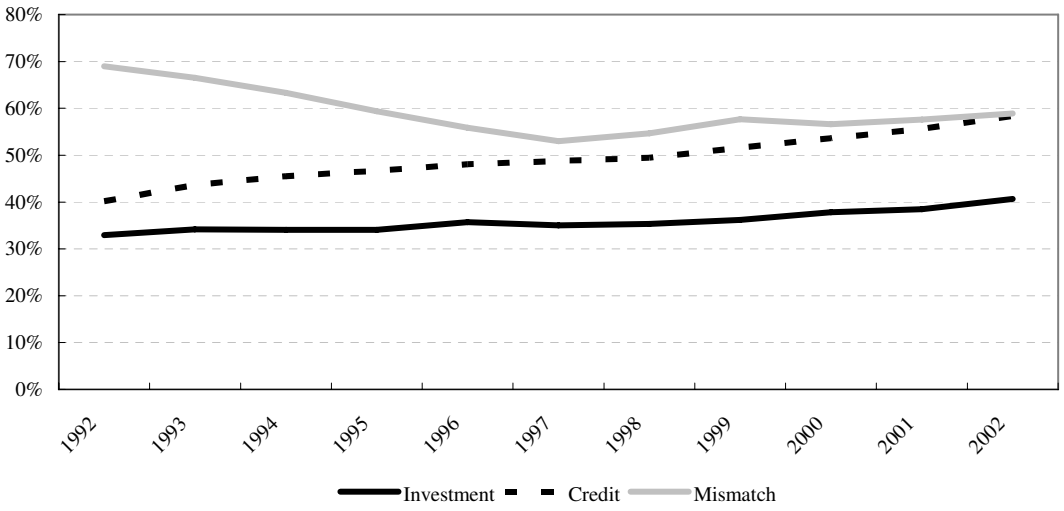
Source: FBBVA-Ivie for investment and Bank of Spain for credit data

Graph 5. Mismatch between effective investment and available credit



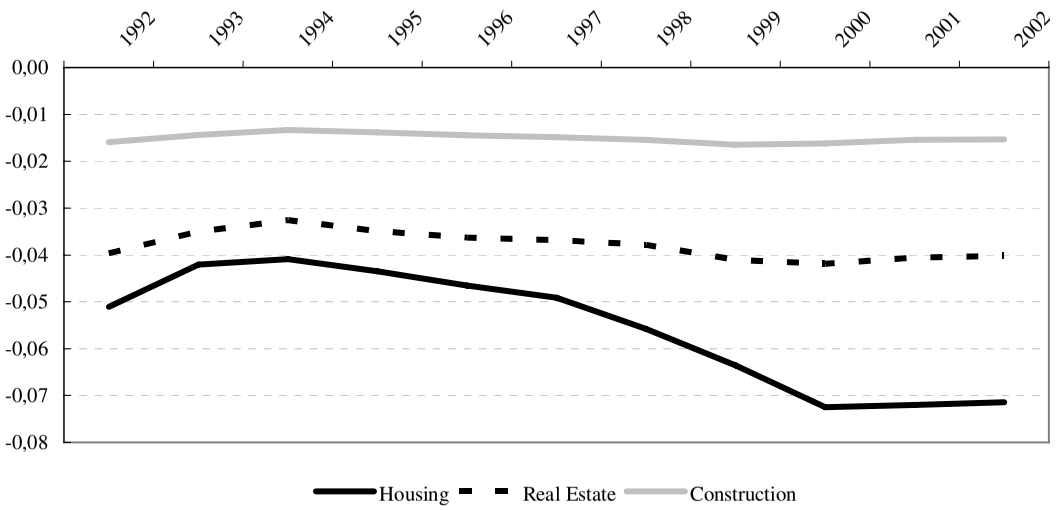
Source: FBBVA-Ivie for investment and Bank of Spain for credit data

Graph 6. Housing, Real Estate & Construction sector shares in the economy



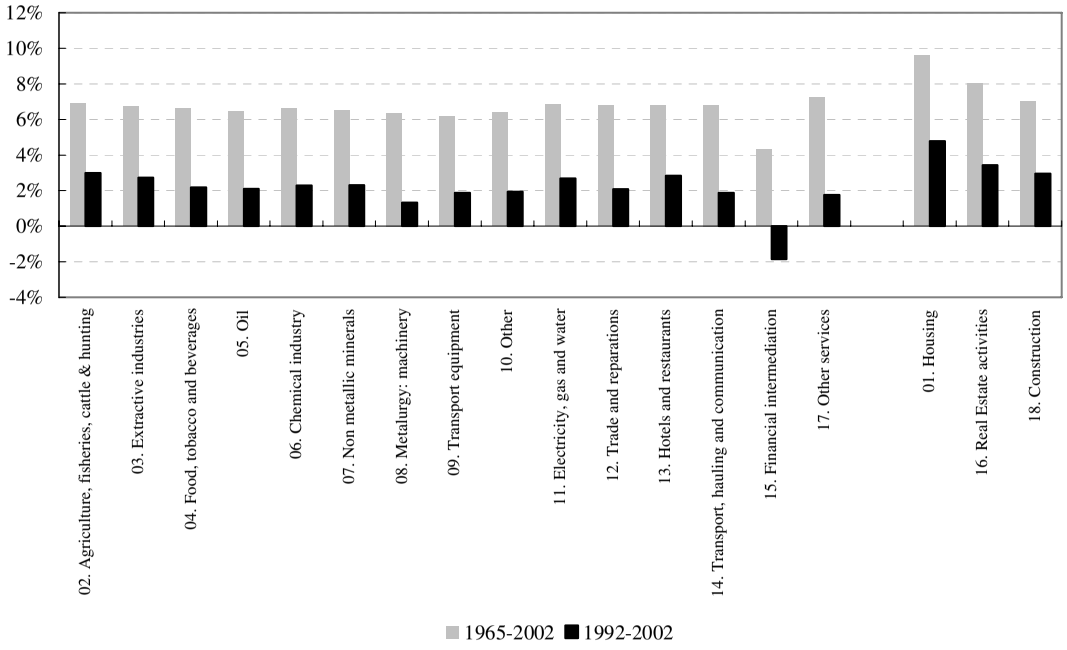
Source: FBBVA-Ivie for investment and Bank of Spain for credit data

Graph 7. Housing, Real Estate & Construction cost of use differential



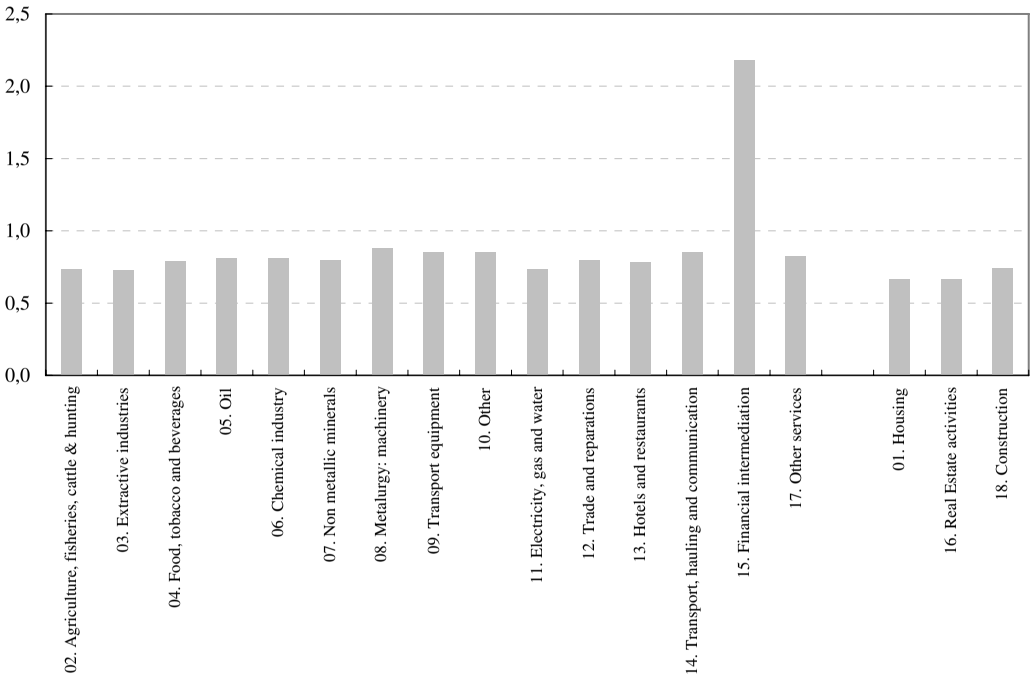
Source: FBBVA-Ivie

Graph 8. Asset inflation



Source: FBBVA-Ivie

Graph 9. Asset prices: coefficient of variation (1992-2002)



Source: FBBVA-Ivie

Table 1. Determinants of sector´s share of credit: Depository institutions
Dependent variable= Cri/CR
For all columns, the reported coefficientes are Tobit estimates since the dependent variable is constrained between zero and one.

	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
CONSTANT	0.096795	7.78086	0.051722	4.33151				
Investment share	0.717025	16.9639	0.749609	17.0535	0.312021	2.46685	0.409383	3.03467
Cost of use	-0.081075	-7.51262			-0.082973	-6.44662		
Depreciation			-0.037622	-3.63934			0.021778	1.01798
Asset inflation			0.4954	2.49503			0.312167	3.12338
Sec1					0.278069	7.77947	0.206694	5.80681
Sec2					0.10449	7.32055	-2.70E-03	-0.124477
Sec3					0.094456	6.70643	-0.017112	-0.729942
Sec4					0.096997	6.769	-4.86E-03	-0.241359
Sec5					0.093063	6.3734	-0.021779	-0.868482
Sec6					0.087763	6.34439	-0.016628	-0.782459
Sec7					0.095196	6.39428	-0.018809	-0.788921
Sec8					0.112536	7.11311	5.88E-03	0.271157
Sec9					0.119132	6.21653	-0.032475	-0.925409
Sec10					0.120767	7.43458	5.63E-03	0.23728
Sec11					0.114758	7.43598	-7.09E-04	-0.029318
Sec12					0.141539	8.62156	0.046535	2.51718
Sec13					0.092387	6.81663	-8.26E-03	-0.420203
Sec14					0.116875	5.11234	-0.018012	-0.62741
Sec15					0.159994	7.04488	-5.76E-03	-0.144834
Sec16					0.092665	7.03019	0.025991	2.17803
Sec17					0.102341	3.13399	-0.010536	-0.321038
Sec18					0.15847	12.4571	0.067659	3.97538
Sigma	0.03563	19.8997	0.036747	19.8997	0.012663	19.8997	0.013502	19.8997
Log likelihood	379.293		373.183		584.132		571.419	

Note: "Investment share"=Investment in sector "i" /Total investment; "Cost of use" is the cost of use of capital in sector "i"/Average (all sectors) cost of use of capital; "Depreciation" is the rate of depreciation in sector "i"/Average(all sectors) rate of depreciation;
"Asset inflation" is the annual growth rate of asset prices in sector "i" - Annual growth rate of average asset prices.

Table 2. Determinants of sector´s share of credit: Commercial banks
Dependent variable= Cri/CR
For all columns, the reported coefficientes are Tobit estimates since the dependent variable is constrained between zero and one.

	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
CONSTANT	0.063	6.689	0.044	4.861				
Investment share	0.605	18.867	0.623	18.806	0.357	2.289	0.490	2.921
Cost of use	-0.041	-5.029			-0.108	-6.803		
Depreciation			-0.023	-2.926	0.177	4.012	0.023	0.856
Asset inflation			0.069	0.464	0.117	6.650	0.402	3.234
Sec1					0.177	4.012	0.084	1.890
Sec2					0.117	6.650	-0.017	-0.631
Sec3					0.121	6.989	-0.018	-0.609
Sec4					0.128	7.227	0.000	0.003
Sec5					0.123	6.812	-0.020	-0.653
Sec6					0.117	6.876	-0.013	-0.499
Sec7					0.126	6.878	-0.016	-0.541
Sec8					0.151	7.770	0.018	0.663
Sec9					0.158	6.683	-0.030	-0.697
Sec10					0.161	8.063	0.017	0.591
Sec11					0.149	7.850	0.005	0.172
Sec12					0.175	8.655	0.055	2.406
Sec13					0.115	6.891	-0.011	-0.445
Sec14					0.144	5.098	-0.026	-0.719
Sec15					0.215	7.688	0.009	0.187
Sec16					0.096	5.886	0.011	0.720
Sec17					0.148	3.683	0.005	0.111
Sec18					0.164	10.494	0.051	2.390
Sigma	0.027	19.900	0.028	19.900	0.016	19.900	0.017	19.900
Log likelihood	434.147		429.107		542.834		528.297	

Note: see table 1

Table 3. Determinants of sector´s share of credit: Savings banks
Dependent variable= Cri/CR
For all columns, the reported coefficientes are Tobit estimates since the dependent variable is constrained between zero and one.

	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
CONSTANT	0.141	6.626	0.064	3.185				
Investment share	0.881	12.149	0.931	12.506	0.147	1.149	0.142	1.116
Cost of use	-0.135	-7.283			-0.029	-2.215		
Depreciation			-0.060	-3.438			0.049	2.412
Asset inflation			0.994	2.956			0.112	1.197
Sec1					0.445	12.308	0.420	12.548
Sec2					0.057	3.919	-0.021	-1.021
Sec3					0.036	2.514	-0.047	-2.142
Sec4					0.040	2.753	-0.032	-1.688
Sec5					0.033	2.209	-0.054	-2.310
Sec6					0.030	2.161	-0.046	-2.280
Sec7					0.035	2.325	-0.049	-2.192
Sec8					0.046	2.887	-0.029	-1.424
Sec9					0.042	2.145	-0.077	-2.336
Sec10					0.055	3.338	-0.028	-1.259
Sec11					0.053	3.388	-0.032	-1.406
Sec12					0.079	4.783	0.018	1.030
Sec13					0.046	3.383	-0.025	-1.346
Sec14					0.048	2.071	-0.045	-1.673
Sec15					0.059	2.554	-0.071	-1.912
Sec16					0.080	5.996	0.043	3.863
Sec17					0.047	1.412	-0.018	-0.575
Sec18					0.142	11.013	0.079	4.965
Sigma	0.061	19.900	0.062	19.900	0.013	19.900	0.013	19.900
Log likelihood	272.314		268.844		581.741		583.649	

Note: see table 1

Acknowledgements

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Endnotes

[1] On the housing price effect of easier access to credit see Vigdor (2004).

[2] Mas et al (2004), forthcoming.

[3] See the broad survey in Freixas & Rochet (1997).

[4] OECD (2000a and b).

[5] We compute for each year the sum of the square relative deviations among the share of investment and credit for the two groups.

[6] This is indicated when the dependent variable is constrained between zero and one.

[7] We use the contemporaneous investment ratio. Considering that investment is a flow and credit is a stock, we considered a five and a ten year lagged average of that ratio. The results were robust irrespectively of the definition used.

[8] This is equivalent to estimating a fixed effects model with panel data.