ECRI POLICY BRIEF
Understanding Credit Markets for Europe

Collateral and Credit Rationing

The role of collateral in explaining and remediating the limited flow of credit to households and SMEs

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Abstract

European-wide data concerning both companies and households indicate that the credit rationing phenomenon, which has been predicted by theory, does in fact occur to a significant degree in the European credit market. Among SMEs, micro companies are most vulnerable and the current economic crisis has only made these concerns more pressing. Top-down use of the monetary transmission mechanism alone is insufficient to counter the problem. The other solution consists of a bottom-up, microeconomic stimulation of lending transactions, by focusing on collateral and guarantees. The data confirm the high importance that lenders – especially individual households and micro companies – attach to collateral and guarantees when making their lending decisions. As a consequence, we would argue that those parts of the law governing security interests and guarantees should be one of the primary targets for government policy aimed at improving credit flows, especially in avoiding a conflict between consumer protection measures and laws on surety and guarantees.

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Introduction

The relevance of credit rationing

Insufficient credit availability, known in economic literature as credit rationing, is a form of market failure caused by adverse selection. The effects of this failure are potentially extremely damaging for a well-functioning economy. If the European economy were a body, the system of credit would be the arteries, as it is often pictured, and credit rationing would represent dangerous blood clots. Restrictions to credit flow are felt first and foremost by small economic actors, mainly households and micro, small and medium enterprises (SMEs).

Outline of this policy brief

This policy brief firstly aims to give an overview of the problem of credit rationing and show that low-income households and SMEs are most concerned by the phenomenon. Focusing solely on loans as a way of financing and on the issues related to access to finance of micro and small companies as well households, it then sketches possible solutions focused on guarantees.

Use of data

This paper brings together data from the Eurosystem Household Finance and Consumption survey (HFCS), Eurostat, and both the latest wave of the extended biennial EC/ECB Survey on the access to finance of SMEs (EC/ECB SAFE 2013) and the latest wave of the smaller semi-annual ECB SAFE Survey, covering the period between October 2012 and March 2013.

Credit rationing in theory and practice

Two main causes of credit market failure and of credit rationing

In an ordinary market, supply and demand are brought together by the price. The credit market, however, is not an ordinary market, but one characterised by adverse selection. This is predominantly due to two reasons. The first is the key importance of information about borrower risk, and its asymmetric dispersion across credit market players. The second is the effect of the price on that risk. Since the price affects the risk being at the core of the transaction, credit markets cannot be entirely cleared.[1]

The effects of interest rates on credit risk and subsequent profit paradoxes

The adverse selection quality of the credit market becomes apparent when looking at the negative effects of allowing interest rates to rise under market influence. Rising interest rates will reduce the quality of the pool of borrowers by pushing out low-risk, low-yield borrowers and attracting riskier borrowers instead. Higher prices will also change the behaviour of the borrowers, as their profit margins are reduced, pushing them to projects with a lower probability of success but with higher payoffs when successful. As a consequence, paradoxical though this may sound, past a certain point,

[1] D. Jaffee and T. Russel (1976), "Imperfect information, uncertainty and credit rationing", *The Quarterly Journal of Economics*, Vol. 90, No. 4, p. 651; J. Stiglitz and A. Weiss (1981), "Credit rationing in markets with imperfect information", *The American Economic Review*, Vol. 71, No. 3, p. 393.

net returns to the bank can actually decrease with rising interest rates, because the default losses may rise faster than the increased interest income.[2]

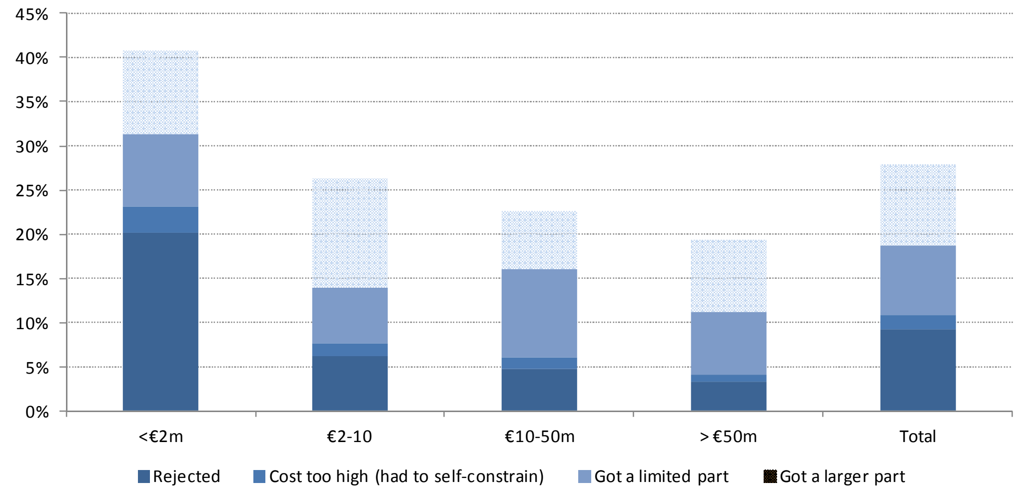
A rationale for imposed credit constraints leading to inefficiencies

In order to protect themselves and the credit market from the adverse selection carousel of rising prices and ever worsening quality of borrowers and decreasing net returns, banks limit the supply of credit and offer this credit at a low interest rate. As a consequence, demand will exceed supply without the price being able to help, causing the market to fail in order to function.

The state of credit constraints among households and SMEs

These theoretical claims are supported by empirical data concerning both households and SMEs. According to the HFCS data, 8.1% of European households were credit constrained to some degree in the three years preceding the survey.[3] The situation for SMEs is much worse, with 31% being actively credit constrained in the six months leading up to the SAFE survey of 2013, in addition to the 5−7% of SMEs that did not even apply for various types of financing, assuming they would be rejected anyway.[4] In contrast, only 15% of large companies reported similar difficulties.[5] Eurostat data confirm this picture, with SMEs' success rates in obtaining loan finance having declined between 2007 and 2010.[6]

Figure 1. Imposed credit constraints by annual turnover of the company



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[2] Stiglitz and Weiss, op. cit., pp. 396 and 401.

[3] ECB (2013a), *The Eurosystem Household Finance and Consumption Survey – Results from the first wave,* ECB Statistics Paper Series No. 2, April, p. 101 (www.ecb.europa.eu). This number is based on observations that do not necessarily cover all countries, without any treatment for missing values.

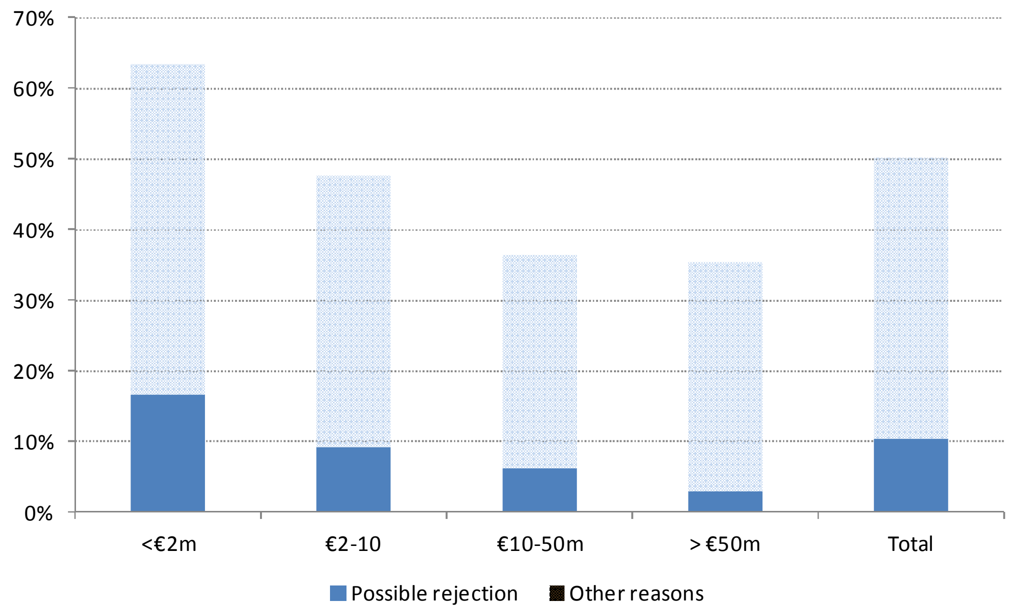
[4] European Commission (2013), *SME's access to finance 2013,* Analytical report, 14 November, p. 27 *et seq.* (at http://ec.europa.eu/enterprise/policies/finance/data/#h2-1).

[5] These data were collected for the period between October 2012 and March 2013, see ECB (2013b), *Survey on the access to finance of small and medium-sized enterprises in the euro area. October 2012 to March 2013*, p. 15. Data partially accessible at http://sdw.ecb.europa.eu/browse.do?node=9138811.

[6] Data available at http://epp.eurostat.ec.europa.eu/portal/page/portal/european_business/data/database

The extent of externally imposed credit constraints is greatest by far among the micro companies and the inversed correlation becomes weaker beyond this category sector (see *Figure 1*). The full rejection rate is over three times higher for micro companies than for small ones, but companies are rationed in the amount across all sizes.

Figure 2. Reasons for not applying for a loan despite the need (proxy of self-imposed credit constraints), by annual turnover of the company



SMEs, and especially micro firms, are aware of their low capacity for obtaining finance, which leads a significant proportion of companies seeking credit to not apply for it because they think their application would be rejected, thus self-constraining their access to credit. The number of possible rejections therefore does not fully illustrate the problem of insufficient access to finance; it is an even larger problem more anchored on micro firms. As *Figure 2* shows, among the micro companies the likelihood of not applying for credit due to possible rejection is almost six times higher than for large companies.

Access to credit particularly difficult for SMEs

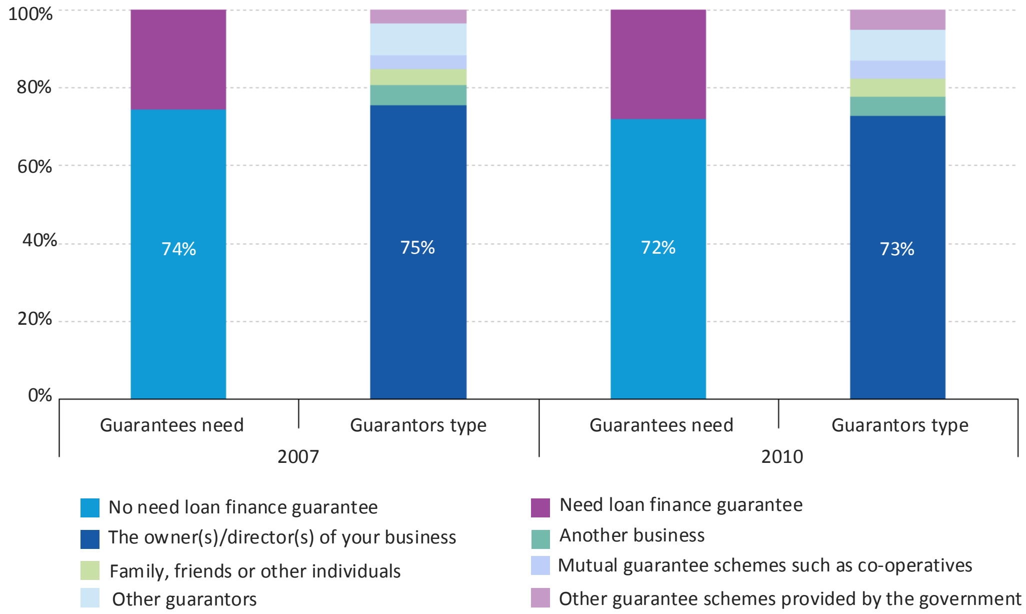
SMEs do in fact recognise their predicament, as access to finance was named the dominant concern for the future by the second largest percentage of respondents in the EC/ECB SAFE 2013 study, surpassed only by finding customers. Large companies are less worried about access to finance, which is consistent with their above-mentioned much lower credit constraint rate.[7]

[7] ECB (2013b), op. cit., p. 5 (www.ecb.europa.eu).

Limited availability of credit an increasing problem for the European economy

Credit is an important fuelling force for the economy. Low availability of credit therefore hampers economic recovery,[8] as it both household consumption[9] and denies companies part of the financial means they need in order to function. This strong interaction between a country's general economic performance and the severity of credit constraints is also apparent from the data. While German SMEs reported, on balance, an increase in the availability of bank loans (+6%), the deterioration in Greece (-47%) and Italy (-35%) was alarming. [10]

Figure 3. Need for guarantees and guarantors in obtaining loan finance in 2007 and 2010, by type



Source: Eurostat

Collateral and access to finance of SMEs

The importance of collateral to SMEs

A portion of SMEs needing guarantees in order to get finance of 26% in 2007, rising to 28% in 2010, seems significant, especially given the fact that three quarters of these guarantees were provided by the owners or directors of the business (see Figure *3* above). This means that about 20% of SMEs must agree to what effectively amounts to piercing the corporate veil for the benefit of specific creditors.[11]

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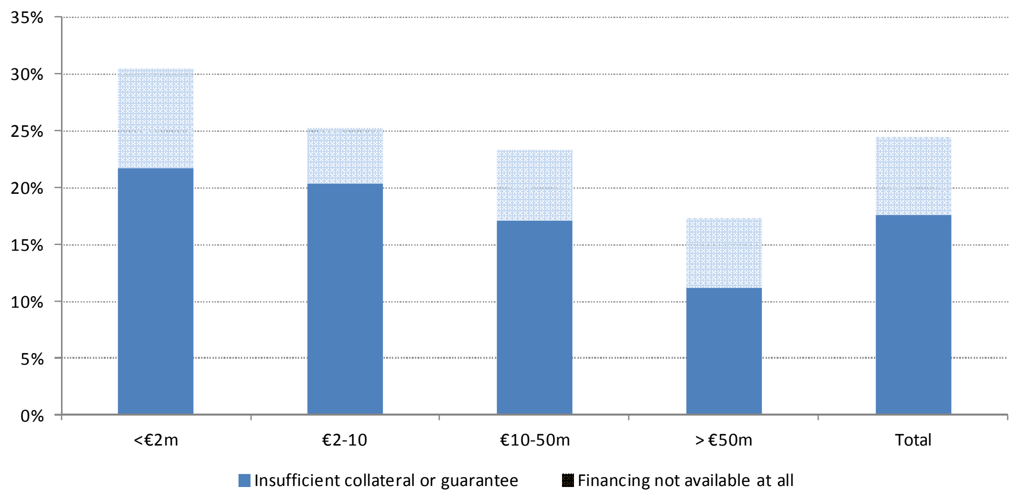
[8] G. Dell'Ariccia, E. Detragiache and R. Rajan (2008), "The real effect of banking crises", *Journal of Financial Intermediation*, Vol. 17, p. 96.
[9] Seminal work in this respect was performed by M. Friedman (1957), *A Theory of the Consumption Function*, Princeton University Press and R. Hall (1978), "Stochastic implications of the life cycle-permanent income hypothesis: theory and evidence", *Journal of Political Economy*, Vol. 86, No. 6, pp. 971-987.
[10] European Commission, op. cit., p. 56 *et seq.* The numbers are net percentages, referring to the difference between the percentage of firms reporting an increase for the factor at hand and the percentage of those reporting a decrease.
[11] *Access to finance statistics – Statistics explained,* Eurostat, p. 5 (http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Access_to_finance_statistics#).

Figure 4. Percentage of companies quoting insufficient collateral or guarantee, or no access to finance at all, as main limiting factor to obtaining external finance, by turnover



Insufficient collateral or guarantee as a more significant strain on small companies

More detailed data on insufficient collateral for companies broken down by turnover offer even more insight (see Figure *4*). As in other instances of credit constraints, the extent of the problem is indirectly correlated to the size of the company. The bigger the company, the lower the chance of quoting missing collateral or guarantee as the main obstacle in getting finance, signalling that collateral is more important for SMEs, as only companies with some financial constraints, among which SMEs are overrepresented, are plotted in the figure.

Collateral as a cost-efficient alternative to credit rating

This high importance of collateral for SMEs is partly explained by the fact that a credit rating is associated with higher access to finance than credit scoring. A credit rating not being widely accessible due to its cost would, however, be compensated by the information conveyance of collateral, significantly improving the access to finance for smaller companies.

Benefits for lenders

First, the reason why the granting of security interests in collateral might enable the lender to set the interest rate more accurately is that the risk of losses on the loan, to the extent that the debt is covered by collateral, is displaced by the evolution in value of that collateral, rather than remaining with the economic viability of the borrowing company, which can be harder for the lender to assess. Shifting risk to certain categories of assets allows lenders to enjoy the benefits of specialisation and centralisation.

Reducing the adverse selection

Second, collateral requirements also counteract the sorting effect of higher interest rates. Setting a particular interest rate has certain consequences in terms of the quality of the borrowers it attracts – higher interest rates attract higher risks.[12] This is a consequence of the asymmetry between the payoff structures of lenders and borrowers; the borrower only cares about his payoffs when the project is successful, and this return is potentially unlimited, while any losses aren't his to bear as they are wiped out by

[12] H. Bester (1987), "The role of collateral in credit markets with imperfect information", *European Economic Review*, Vol. 31, No. 4, p. 894; Stiglitz and Weiss, op. cit., p. 393.

bankruptcy.[13] The lender's profit, on the other hand, consists only of the interest rate if the project is successful, yet he stands to lose the entire principal if it fails. Therefore, borrowers who have more risky projects in mind will not be dissuaded by the high interest rates, while low-risk borrowers will drop out as their low-yield projects won't be able to sustain these high rates. Requiring collateral raises the stakes for borrowers by making sure that they will also bear some losses on default, reducing the asymmetry in payoffs and therefore improving the sorting of borrowers.

Discouraging excessive risk-taking

The third benign effect collateral can have on credit rationing is the countervailing force it can exert on the incentive effects of the interest rate. Higher interest rates will change the behaviour of the borrower, pushing him towards more risky projects. This is another consequence of the asymmetry in payoffs mentioned above: borrowers can only gain from switching to riskier projects once the loan has been granted, as they enjoy all of the upside potential with none or only part of the downside risk. Under the right circumstances, collateral can be used to counteract this moral hazard by making riskier projects less attractive to the borrower, at the cost of less efficient risk-sharing.[14] This is another example of how raising the stakes for the borrower can align his incentives with the interests of the lender.

Reducing moral hazard

These second and third effects also find empirical support in the available data. The above-mentioned results on guarantee requirements for SMEs support the third effect as well as the first effect, as requiring guarantees from insiders who exert power over the company reduces the risk of moral hazard.

Rising need for collateral

Collateral's second function of counteracting the sorting effect of the interest rate is consistent with the ECB SAFE data on SMEs. Only 17% (net) of euro area SMEs reported an increase in interest rates in 2013, down from 27% in 2010. This number however, hides considerable heterogeneity since German and French SMEs indicated a decline, while the majority of Spanish (66%) and Italian (62%) SMEs saw an increase in interest rates. Collateral requirements, on the other hand, have increased all over Europe for a net percentage of 35% of respondents, including in Germany (15%). The same evolution was observed for large firms, albeit to a lesser extent (22%).[15] Eurostat data also confirm the importance banks and other lenders attach to collateral and to the existence of capital that they can seize.[16]

[13] Lawyers will rightfully point out that the extent to which bankruptcy will wipe out losses depends on a number of factors, such as whether the debtor is a legal or natural person, possible directors' liability issues, the amount of capital invested, etc. Relaxing the stylising assumption we have made here would, however, lead us too far off track, and would not refute the principle of asymmetric payoffs.

[14] Bester, op. cit., p. 896.

[15] ECB (2013b), op. cit., pp. 16-17.

[16] *Access to finance statistics – Statistics explained*, Eurostat, p. 4 (http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Access_to_finance_statistics#)

Collateral and household lending

Specifics of households in dealings with debt

Even though the HFCS survey on household consumption does not contain any direct data on collateral and guarantees, it does yield a number of interesting insights upon analysis. Given the more homogeneous capital structure of households compared to SMEs, and the general legal landscape concerning debt collection and insolvency law characterised by the possibility to seize debtor wealth in various forms as well as debtor income, a differentiated approach can be applied to households, separating the effects of income, net overall wealth and real estate wealth. This approach allows for more nuanced conclusions.

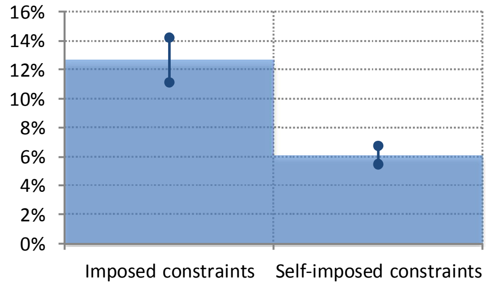
The importance of households' collateral in accessing a loan

When looking at the data, the first thing that becomes apparent is that there is a clear and statistically significant inverse relationship between net wealth, income and real estate wealth on the one hand, and credit constraints imposed by lenders on the other. These trends are consistent with theoretical predictions on the workings and importance of collateral and debt collection law. The ECB analysis confirms that the role of collateral is likely to be the connecting factor.[17]

The additional limits to access to credit through self-imposed constraints

A second interesting observation is the apparent ability of European households to assess their own probability of success in obtaining credit, leading them to self-select. This self-selection takes place in a significant proportion of cases: while over 12% of the 22.8% of households that applied for credit were refused by their lenders, another 6% of households considered applying for credit but refrained from doing so altogether, thinking they would be turned down (see Figure 5 below). These self-imposed constraints, based on households' own assessments of their credit eligibility, therefore make up a large part of the total credit constraints faced by European households, and can only be made apparent through survey data such as the HFCS. A similar phenomenon can be observed in the data concerning SMEs, where 5–7% refrained from applying for various forms of bank credit on the assumption they would be refused.[18]

Figure 5. Imposed vs. self-imposed credit constraints[19]



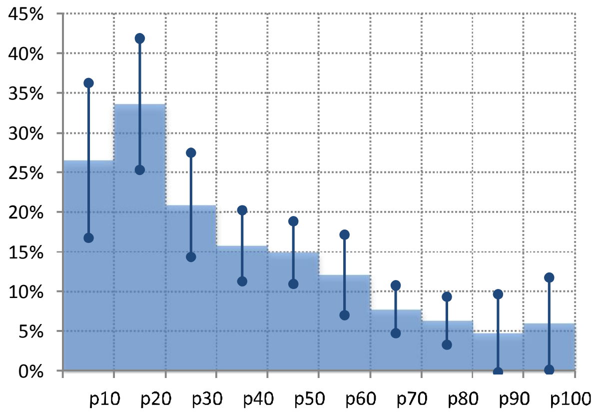
Source: ECRI, HFCS

[17] ECB (2013a), op. cit, p. 104.
[18] European Commission, op. cit., p. 27.
[19] Left column: Percentage of households that applied for but were refused in the past three years (data surveyed between 2008 and 2010 depending on country). Right column: Percentage of households that thought of applying for credit in the past three years, but considered they would be refused. Data apply to the whole euro area except Ireland and Finland due to non-response.

Households could underestimate their chances of getting credit

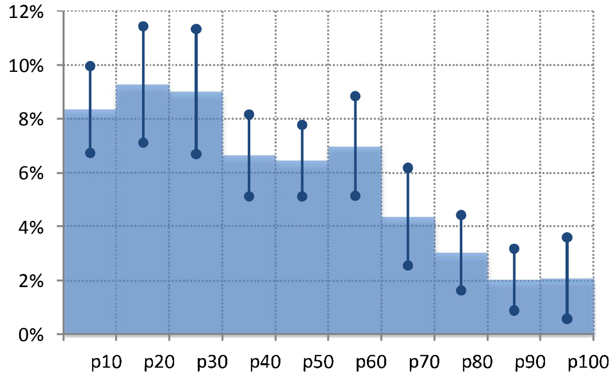
The significant scope of this phenomenon then begs the following question: How accurately do households predict their own ineligibility? Again, the same differentiated approach is required in order to come to a nuanced answer. When analysing the relationship between the three wealth factors and credit rationing, comparing external constraints with self-imposed ones, it becomes clear that, in general, self-selection is fairly accurate. Households understand that there is an inverse relationship between wealth in its various forms[20] and credit eligibility, and even predict the course of this relationship relatively well. However, it appears that when it comes to the influence of income, the lower income deciles tend to underestimate their chances of obtaining credit.

Figure 6. Imposed constraints by income deciles



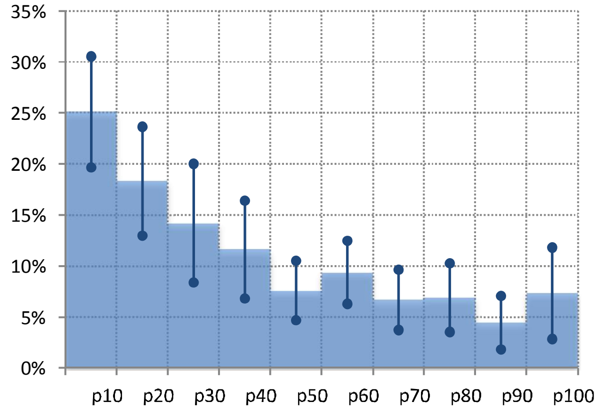
Source: ECRI, HFCS

Figure 7. Self-imposed constraints by income deciles



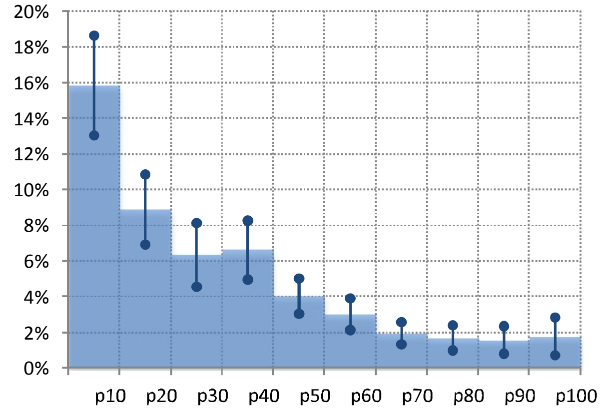
Source: ECRI, HFCS

Figure 8. Imposed constraints by net-wealth deciles



Source: ECRI, HFCS

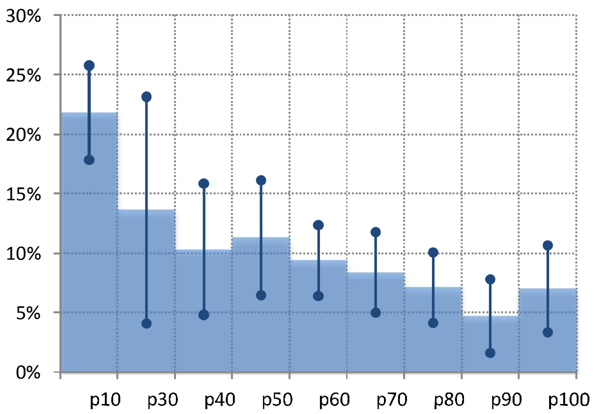
Figure 9. Self-imposed constraints by net-wealth deciles



Source: ECRI, HFCS

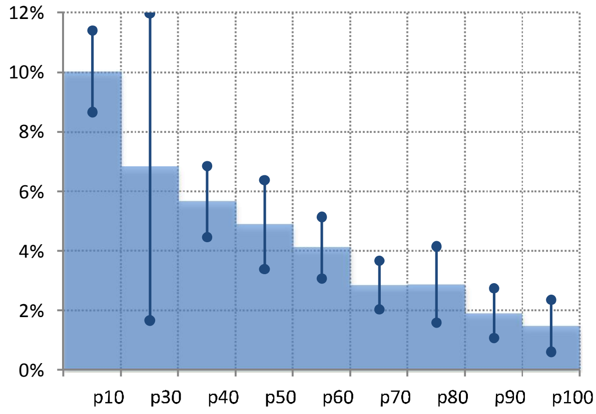
[20] By this, we mean both current wealth, represented in the data by total net wealth and net real estate wealth, and wealth over time, i.e. income.

Figure 10. Imposed constraints by real estate wealth deciles



Source: ECRI, HFCS

Figure 11. Self-imposed constraints by real estate wealth deciles



Source: ECRI, HFCS

Policy solutions

Monetary solutions to credit rationing

Policy-makers have two routes available to reduce credit rationing. The first is the use of monetary policy. The ECB engaged in non-standard monetary policy measures to increase the supply of money, hoping that the monetary transmission mechanism would turn this increased availability of money into real economic performance. Unfortunately, this only seems to have worked to a limited extent and monetary transmission encounters persistent problems.

The limited impact of monetary expansion on rationed credit calling for different solutions

It seems that banks are hoarding funds for a variety of reasons, e.g. meeting the stricter Basel requirements or reducing their lending risk, so that the cheaper ECB money only partially reaches the real economy. As a consequence, these measures fail to create the full intended impact, yet the ECB believes they have still helped stem the downward flow of bank loan availability.[21] The influence of improved bank funding is also indicated by the sharp decline in the number of SMEs indicating excessive interest rates as the reason for their failure to secure finance, as observed by Eurostat.[22] Monetary policy therefore can only offer a partial solution, especially in times of financial economic stress.

Reducing rationed credit through developing legislation on collateral

The second channel through which policy-makers can aspire to reduce credit rationing is collateral law, i.e. trying to remove the final blockages at the end of the circuit that are keeping the blood from flowing into the extremities. Demanding security in collateral changes the game for lenders in a number of different ways. First of all, it allows lenders to set the interest rate more accurately because it both conveys information about the underlying credit risk of the borrower and moves risk to assets rather than businesses, which are often easier to assess.

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[21] ECB (2013b), op. cit., p. 9.

[22] *Access to finance statistics – Statistics explained, p4,* Eurostat (http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Access_to_finance_statistics#).

Appropriate collateral laws to decrease information asymmetry

The information conveyance function of collateral aims at the heart of the adverse selection problem. The basis of this problem is lenders' inability to distinguish borrowers according to risk. If, however, borrowers can be perfectly sorted, there will be no rationing.[23] This information can be obtained using the contract terms of the credit offer as a screening mechanism. One of the terms suitable for use as a screening mechanism is the collateral or guarantee requirement the loan applicant will have to fulfil. If these terms are designed in such a way that borrowers reveal their risk type through their choice of contract, without giving any borrowers an incentive to misrepresent their type (incentive compatibility), the choice of contract can serve as an information conveyance mechanism.[24]

Personal guarantee as an increasingly malfunctioning phenomenon

The typical contract used in this context is the personal guarantee or surety, which takes roughly the same shape in all European jurisdictions. However, the efficacy of this instrument has been reduced in recent years by various types of consumer legislation all across Europe.[25] While this legislation is inspired by legitimate concerns of protecting non-professional sureties, who are less well suited to assess the risks associated with a surety agreement, it is imperative that the surety or personal guarantee remains able to perform its essential function – supporting the granting of credit. Overly protective legislation could paralyse the provision of credit to households and to SMEs, especially to micro firms, and drive players to circumvention efforts that are even less efficient for all parties.[26]

The role of guarantees in reducing the asymmetry

An important example of the information conveyance function in the financing of SMEs is the requirement for guarantees by insiders, typically directors or owners of the borrowing company. These insiders have better information about the borrowing company's prospects than the lender, and requiring them to post personal guarantees disincentivises them from misrepresenting their type. In addition to this signalling function, requiring such guarantees also aligns incentives after the loan has been granted, as will be further explained below. If properly designed, the above-mentioned protective consumer legislation will not interfere with this function when it comes to SME finance,[27] as it is usually not meant to target sureties in support of business loans.

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[23] Bester, op. cit., p. 895.

[24] A. Berger and G. Udell (1990), "Collateral, loan quality and bank risk", *The Journal of Monetary Economics*, Vol. 25, No. 1, p. 24; Bester, op. cit., p. 891; D. Besanko and A. Thakor (1987), "Collateral and Rationing: Sorting Equilibria in Monopolistic and Competitive Credit Markets", *International Economic Review*, Vol. 28, No. 3, p. 677.

[25] For general notes and references on the various types of non-professional surety protection, see U. Drobnig (ed.) (2007), *Principles of European Law. Personal Security,* Munich*:* Sellier.

[26] F. Helsen (2013), "Gewone en kosteloze borgtocht. Rechtseconomische doorlichting", *NJW*, afl. 292, p. 881.

[27] Initially, however, there was some uncertainty regarding the scope of these provisions in Belgium, which was fortunately resolved by the *Cour de Cassation* (ibid., p. 877)

Conclusions

Empirical evidence for the significant role of credit rationing

European-wide data concerning both companies and households indicate that the credit rationing phenomenon, which had been predicted by theory, does in fact occur to a significant degree in the European credit market. As far as companies are concerned, SME's are most vulnerable and the current economic crisis has only made these concerns more pressing.

The need for collateral and guarantees laws to counter the problem

The data show that the macroeconomic, top-down use of the monetary transmission mechanism alone is insufficient to counter the problem. The other solution consists of a bottom-up, microeconomic stimulation of lending transactions by focusing on collateral and guarantees. In this respect, it is imperative that these tools be designed in conformity with their underlying economic functions and mechanisms. When adopting protective consumer legislation, for example, it is therefore important to weigh the possible adverse effects on the availability of credit against the envisioned benefits.

Self-exclusion from the credit markets is not excessive

The first interesting conclusion that can be drawn from the surveys on households and SMEs is that anticipative self-exclusion from the credit market is a significant phenomenon. As households have a more homogeneous capital structure than SMEs, disaggregation along the lines of their primary sources of wealth made sense, showing that both bank-imposed and self-imposed credit rationing follow theoretical predictions, and that households are able to assess their chances fairly accurately.

Law governing interests and guarantees to be addressed to limit rationing

Indeed, the data confirm the high importance that lenders attach to collateral and guarantees when making their lending decisions. As a consequence, we would argue that those parts of the law governing security interests and guarantees should be the primary target for government policy aimed at improving the flow of blood in the economy, while not preventing consumers from receiving due protection.

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